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IN THE
Supreme Court of the United States

OCTOBER TERM, 1960

POWER REACTOR DEVELOPMENT COMPANY, PETITIONER,

INTERNATIONAL UNION OF ELECTRICAL, RADIO AND MACHINE
WORKERS, AFL-CIO, ET AL. RESPONDENTS

UNITED STATES OF AMERICA AND ATOMIC ENERGY COMMISSION,
PETITIONERS.

INTERNATIONAL UNION OF ELECTRICAL, RADIO AND MACHINE
WORKERS, AFL-CIO, ET AL. RESPONDENTS

ON WRITS OF CERTIORARI TO THE UNITED STATES COURT
OF APPEALS FOR THE DISTRICT OF COLUMBIA CIRCUIT

BRIEF FOR RESPONDENTS

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MARCH 1961.

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BRIEF FOR RESPONDENTS

Opinion Below

The Opinion of the Court of Appeals (R. 953-968)¹ is reported at 280 F.2d 645.

¹ Citations indicated by "R. ——" are to the 3 volumes of the printed record in this Court. In Volumes I and II, the pagination referred to appears at the bottom of each page; the pagination at the top of the page is the original pagination of the certified record. In Volume III, the pagination referred to appears at the top of each page.

Citations indicated by "Tr. ——" are to unprinted pages of the certified record of the proceedings before the Commission, which has been filed with the Clerk of this Court.

Petitions for a rehearing *en banc* were denied without opinion by Chief Judge Prettyman and Circuit Judges Danaher, Fahy, Edgerton, and Bazelon, with Circuit Judges Baughman and Miller dissenting. (R. 970-971).

The Opinion and Final Decision (R. 630-712), and Order (R. 713-744) of the Atomic Energy Commission, are not reported.

Jurisdiction

The judgment of the court below was entered on June 10, 1960, (R. 969), and petitions for rehearing *en banc* by Power Reactor Development Company, hereinafter referred to as PRDC, and the United States and the Atomic Energy Commission, hereinafter sometimes referred to jointly as Government, were denied on July 25, 1960. PRDC filed a petition for writ of certiorari on August 12, 1960, (No. 315) and the Government filed a petition for writ of certiorari on September 29, 1960 (No. 454). Both petitions were granted on November 14, 1961, limited to the first two questions presented in the petitions, and the cases were consolidated for oral argument. (R. 972, 973; 364 U.S. 889). The jurisdiction of this court rests on 5 U.S.C. 1040 and 28 U.S.C. 1254 (1).

Questions Presented

1. Whether the Atomic Energy Commission violated the Atomic Energy Act of 1954 and its own regulations by issuing a permit for the construction of an atomic energy reactor without finding that there was information sufficient to provide reasonable assurance that the reactor could be operated at the proposed site without undue risk to the health and safety of the public.²

² This includes what the Government calls "a subsidiary question" (Brief, No. 454, p. 2, note), namely, whether, as the court below held (R. 963) "the Commission's findings regarding safety of operation are ambiguous."

2. Whether one of the grounds of decision of the court below is that the Act precludes the Commission from authorizing construction of an atomic energy power reactor on a site close to a densely populated area unless the Commission finds that there are "compelling reasons" therefor.

Statutes and Regulations Involved

The pertinent provisions of the Atomic Energy Act of 1954, and of the Commission's regulations, are set forth in Appendix A *infra*, pp. 91-99.

Statement

1. *Proceedings before the Commission*

On January 6, 1956, PRDC filed an application for a license under Section 104 of the Act to design, construct and operate a developmental fast neutron breeder reactor at Lagoon Beach, Michigan (R. 364-394).

On June 6, 1956, the Commission's Advisory Committee on Reactor Safeguards submitted a unanimous report to the General Manager of the Commission summarizing its investigation of the proposed reactor, (R. 587-593) and concluded, in part, that, "the Committee believes there is insufficient information available at this time to give assurance that the PRDC reactor can be operated at this site without public hazard" (R. 588). This report was not made available to the public until October 8, 1956.³

³ The Commission initially refused to make a copy of this report available even to the Congressional Joint Committee on Atomic Energy, on the grounds that the Commission's independence would be impaired and its regulatory functions impeded, but nevertheless offered it on an "administratively confidential" basis. *A study of AEC Procedures and Organization in the Licensing of Reactor Facilities*, 85th Congress, 1st Session, Joint Committee Printing, pp. 117, 118. When the Joint Committee rejected the report on this basis, the Commission transmitted the report without conditions, and on October 9, 1956, admitted that the effort to put a "confidential" label on the report was a mistake (*Id.*, pp. 119-122).

On August 4, 1956, the Commission, by a majority vote, granted a construction permit to PRDC to build its proposed reactor. (R. 516-523).⁴ The permit recognized that:

"(1) There are identified areas of uncertainty regarding the hazards potential of fast neutron breeder reactors that must be investigated and resolved. From the current state of the technology applicable to such reactors it can reasonably be inferred that there may be other areas of uncertainty not yet identified and requiring investigation and resolution. Of primary importance among the identified areas of uncertainty are:

"(a) Whether there exists in the PRDC reactor a positive component of the temperature coefficient similar to that exhibited in the Commission's experimental breeder reactor (EBR-1). The source of the positive component of the temperature coefficient exhibited by EBR-1 (presently believed to be caused by dimensional distortion of the core structure) must be identified and its effect, if any, in the PRDC reactor must be eliminated.

"(b) Whether there is a credible condition of meltdown and reassembly of the fuel of the PRDC reactor which could result in an explosion that would breach the gas-tight building surrounding the reactor. Further investigations must be carried out to establish that a credible condition of meltdown with consequent U-235 accumulation of critical dimensions cannot result in such an explosion.

"(2) On the basis of information presently available,

⁴ Commissioner Thomas E. Murray dissented on the ground that the information then before the Commission "was insufficient to provide reasonable assurance that a facility of the general type proposed could be constructed and operated at the proposed location without undue risk to the health and safety of the public." He relied principally on the report of the Advisory Committee on Reactor Safeguards. (R. 586)

the Commission believes that the problems relating to safety of *operation* of the PRDC reactor will prove to be of a kind that can be satisfactorily resolved within a reasonable time. There is some doubt whether they can be resolved in time to meet the schedule proposed by PRDC in its application and it may turn out that further investigations beyond the program of investigation outlined by PRDC in its application will be needed." (Emphasis added). (R. 517, 518).

The date fixed for completion of the reactor was December 15, 1960. (R. 519).

On or about August 31, 1956, United Automobile, Aircraft and Agricultural Implement Workers of America, AFL-CIO, International Union of Electrical, Radio and Machine Workers, AFL-CIO, and International Union, United Paperworkers of America, AFL-CIO, and their officers, Respondents here, filed petitions for intervention before the Commission (R. 524-570), alleging, *inter alia*, that the construction permit granted to PRDC was issued in violation of the Act, (R. 529-537), and that there was reasonable ground for believing that, after the expenditure of \$45 million for construction of the reactor, permission to operate would be issued without proper consideration of and regard for the health and safety of the Respondents and other mem-

⁵ Senator Anderson, Chairman of the Joint Committee on Atomic Energy at the time, vigorously criticized issuance of the construction permit because, *inter alia*, (1) a public hearing had not been held despite the grave doubts as to safety raised by its "distinguished committee of experts," (2) the Commission confused "development and promotion functions with its regulative and quasi-judicial responsibilities," and, (3) "AEC might feel obligated to go on through with a bad deal with respect to public safety because they will have permitted the expenditure of huge sums under the construction permit." *A Study of AEC Procedures*, etc. *supra*, pp. 125, 126. See, also, statement of Representative Holtfield, then a member of the Joint Committee, and now its Chairman, to the same effect. (Ibid. pp. 126-127.)

bers of the public (R. 540). They requested immediate suspension of the construction permit pending final determination of the issues raised.

On October 8, 1956, the Commission granted Respondents leave to intervene (R. 576-593), denied the request for suspension of the construction permit (R. 579),⁶ and directed that a hearing be held on issues specified by the Commission (R. 577-578). The issue relating to safety was specified as follows:

"A.1. Whether there is information sufficient to provide reasonable assurance that a utilization facility of the general type proposed by PRDC can be constructed and operated at the Lagoon Beach site without undue risk to the health and safety of the public.

"2. Whether there is reasonable assurance that technical information omitted from and required to complete the application will be supplied." (R. 578).

The Commission also specified the following issue:

"B. Whether, pursuant to Section 50.40 (b) of the Commission's regulations, the applicant is financially qualified to engage in the proposed activities; and whether, pursuant to Section 50.60 (c) (2) of the Commission's regulations, the applicant is financially qualified to receive an allocation of special nuclear material." (R. 578).

The Commission rejected efforts by both Respondents and PRDC to modify and enlarge the issues (Tr. 6399, 6407, 6416, 6426, 6440).

On December 10, 1956, PRDC filed its "Amendment No. 5 to Application For License" in which it requested exemp-

⁶ Commissioner Thomas E. Murray dissented from the Commission's refusal to suspend the construction permit (R. 586, 587).

tions from several regulations of the Commission, including the following (R. 396-397) :

"1) Applicant applies for exemption from the requirement of 10 C.F.R. 50.35 that the Commission be satisfied in connection with the issuance of a construction permit on a provisional basis that 'it has information sufficient to provide reasonable assurance that a facility of the general type proposed can be * * * *operated* at the proposed location without undue risk to the health and safety of the public * * * ' (Emphasis in original).

During the course of an extensive hearing that began on January 8, 1957, it was shown that the greatest potential hazard in the operation of a nuclear reactor lies in the possibility that the tremendous accumulation of radioactive fission products imprisoned in the fuel might somehow, including a breach of the containment, be released into the atmosphere, be distributed by wind, and contaminate inhabited areas. A chain of events which could lead to a release of fission products into the atmosphere may be initiated either by a nuclear runaway or a loss of coolant, and the initial concern from a safety point of view must be, so far as is humanly possibly, to make certain that such a nuclear runaway or loss of coolant cannot occur. (Tr. 4267, 4268). These fission products are more toxic per unit of weight than any other industrially known materials by a

Petitioners emphasize that there is no danger of a reactor accident resembling an atomic bomb explosion. This is only a half truth. A nuclear accident may result in a nuclear flash causing a spread of fission products through openings in the containment, such as flues and stacks, as well as radiation through the walls of the containment even if there is no spread of fission products. Sir John Cockcroft, Britain's leading nuclear scientist, has stated that the accident at the Windscale reactor in England in October 1957, which resulted in passage of radioactive gases through the reactor's chimney stacks, released considerably more radioactivity than is released during an explosion of an atomic bomb of the Hiroshima type. (Manchester Guardian, March 19, 1958)

factor of a million to a billion (R. 74). An official Commission report, titled "*Theoretical Possibilities and Consequences of Major Accidents in Large Nuclear Power Plants*" (R. 349-363), concludes that the possible damage from a major accident in a large power plant may run up to \$7 billion, killing 3400, injuring 43,000 people, and laying waste scores of thousands of square miles of land (R. 353).⁸ More than 2,000,000 people live within a radius of 30 miles of the site of the PRDC reactor (R. 707). The major part of the evidence related to the extent to which the PRDC design has solved, if at all, these serious questions and whether it was safe to build and operate such a reactor at the proposed site.

As pointed out by the Government in outlining the safety questions involved, (Brief, No. 454, p. 18), instability in the uranium core of the reactor may be caused by the pins of fissionable material bowing inward as the heat in the reactor rises, causing a rearrangement of the fissionable materials which would increase the rate at which neutrons were reproduced so rapidly that a nuclear runaway would occur before the reactor could be shut down. The nature of the problem is

⁸ These are not the maximum possibilities. The Introduction to that report states also "There are a few less unusual weather conditions which occur perhaps 5 per cent of the time and which could yield estimated damages outside of the range of figures estimated here. Therefore, this study does not set an upper limit for the potential damages; there is no known way at the present to do this." (Id. p. 4; Tr. 4864). H. J. Gomborg, a consultant for PRDC, in a subsequent analysis of PRDC Exhibit APDA-120 (Tr. 6163) estimated that, in the event of a complete release of fission products in an accident to a reactor of the size of the PRDC reactor, during the weather conditions mentioned, approximately 125,000 people would suffer fatal doses of radiation. (Proceedings, United Nations Second International Conference on Peaceful Uses of Atomic Energy, Vol. 11, pp. 62-63, September 1958). In the latest analysis prepared by the Oak Ridge National Laboratory for the Commission, a study was made of the potential exposure doses at the site boundaries of all present and planned nuclear power plants in the United States following the maximum credible accident for each reactor. A calculation was made for every one except the PRDC (Enrico Fermi) reactor because the maximum credible accident for that reactor has not yet been defined. (Nuclear Safety, September 1960, pp. 83-87).

indicated by the fact that these fuel pins are only 0.158 inches in width, the space between each pin is 0.040 inch, and a bending, or bowing, of the pins by .001 inch may have serious consequences. Inward bowing is what is deemed by the Commission to have caused a nuclear accident in 1954 at the Arco Idaho testing grounds to the only fast neutron breeder reactor which had been operated prior to the issuance of the permit for the PRDC reactor (R. 786-794). No fast breeder reactor can be deemed safe unless that problem is solved.

In this connection, it should be noted that, on or about November 1, 1960, PRDC filed with the Commission a request for modification of the construction permit, to extend the time for completion of the reactor from December 15, 1960, to December 15, 1961. In support of this request, PRDC stated, in part:

"... (F) it has been necessary to redesign the fuel pin support structure in order to prevent possible unacceptable distortion of the pins. While with minor modifications the structure as first designed successfully passed proof tests in hot water, subsequent out-of-pile endurance tests in sodium at full flow and high temperature indicated that the support provided was not adequate"

In other words, PRDC has not yet solved the bowing problem. The Government concedes that "Manifestly, this problem of design would have to be solved before a fast breeder reactor could be permitted to operate at the PRDC location." (Brief, No. 454, p. 18)

The Commission granted an extension of time for completing construction of the reactor to July 15, 1961.*

* A copy of the PRDC request for extension, and the Commission's order, are filed with the Clerk of this Court. However, in its *Ninth Quarterly Technical Report* to the Commission, dated March 10, 1961,

Mr. Lewis Strauss, then Chairman of the Commission, has stated that a reactor such as the PRDC reactor is "the most hazardous of all reactors" (Tr. 1146).

A substantial amount of evidence was introduced on the question of the financial qualifications of PRDC to engage in the proposed activities, and to receive an allocation of special nuclear material.

The hearing was concluded on August 7, 1957, and final briefs were filed on November 29, 1957. On December 10, 1958, the Commission issued its initial decision affirming the construction permit of August 4, 1956, and continuing it in effect with certain modifications and additions. In its principal finding on the safety issue, the Commission declared:

"22. The Commission finds reasonable assurance in the record that a utilization facility of the general type proposed in the PRDC application and amendments thereto can be constructed and *will be able to be operated* at the location proposed without undue risk to the health and safety of the public." (R. 615). (Emphasis added).

On the financial issue, the Commission found, inter alia:

"34. The Applicant is financially qualified to engage in the construction and *operation* of the reactor described in the application and to receive the allocation of special nuclear material therefor." (R. 618) (Emphasis added).

Respondents filed exceptions to the initial decision, including the safety findings on the proposed site (R. 939-945; Exceptions Nos. 7, 19, 21, 23, 23, 29).

The Commission denied the application by PRDC for exemption from regulations of the Commission. (R. 623; *supra*, pp. 6-7).

PRDC declared, "As stated in previous quarterly technical reports, uncertainties associated with certain developmental aspects of the plant make precise prediction of a facility completion date impossible at this time." (p. 6)

2. Decision of the Commission

On May 26, 1959, almost 22 months after the taking of testimony was concluded,¹⁰ the Commission issued its Opinion and Final Decision. All exceptions taken by Respondents were dismissed (R. 699, 700).

However, the Commission changed a number of its findings in the Initial Decision, including its principal finding on the safety issue. The Final Decision contains *no finding on the issue specified by the Commission itself*, namely, whether there is sufficient information to provide reasonable assurance that a utilization facility of the general type proposed by PRDC can be constructed and operated at the Lagoon Beach site without undue risk to the health and safety of the public (*supra*, p. 6).

Instead, qualifying the finding it had made in its Initial Decision, the Commission found only as follows:

"22. The Commission finds reasonable assurance in the record, *for the purposes of this provisional construction permit*, that a utilization facility of the general type proposed in the PRDC Application and amendments thereto can be constructed and operated at the location without undue risk to the health and safety of the public." (R. 708). (Emphasis added).

The Commission stated its applicable standard for construction permits, in part, as follows:

"... The basic statement of the standards under which the Commission will issue both licenses and construction

¹⁰ The decision was issued after the close of hearings on the confirmation of the appointment of Lewis L. Strauss, Chairman of the Commission, to the post of Secretary of Commerce, in the course of which his conduct in this case was severely criticized by members of Congress. The hearings closed on May 14, 1959. (Hearings before Senate Committee on Interstate and Foreign Commerce, 86th Cong., 1st Session, Nomination of Lewis L. Strauss, pp. 927, 934-935, 958-959, 1014)

permits is Section 50.40 of our regulations. Under that regulation, where a construction permit for a developmental facility is involved, the Commission must be assured that (a) the *construction* of the facility will not endanger the health and safety of the public, (b) the applicant for the permit is technically and financially qualified to engage in the proposed *construction*, and (c) the issuance of the permit for *construction* will not involve acts inimical to the common defense and security or to the health and safety of the public." (R. 643, 644) (Emphasis in original).

The Commission further emphasized the limited nature of its findings by other statements. For example, it declared:

"It has not been positively established that a fast breeder reactor of the general type and power level proposed by Applicant can be *operated* without a credible possibility of releasing significant quantities of fission products to the environment." (R. 706) (Emphasis in original.)

Repeatedly the Commission emphasized that its findings on safety were limited to "the purposes of the provisional construction permit." (R. 676, 677, 679, 710).

On the question of the suitability of the site of the reactor, the Commission's findings are equivocal. For example, it declared:

"Although the data (as to site suitability) are not yet complete or conclusive, the record gives reasonable assurance that safe operation of the reactor will be as likely in that location *as in any other location*" (R. 678) (Emphasis added).

But, it also declared,

"... the question of safety obviously cannot be considered without regard to proposed location" (R. 677).

Although some of the Commission's findings refer to the "general type" of reactor proposed by PRDC, the Commission's opinion and findings make frequent references to the specific reactor proposed by PRDC. (R. 660, 661, 666, 673, 675, 704, 705, 710). A very substantial part of the testimony offered by PRDC related to the design and specifications of the PRDC reactor. (Tr. 1973-2117; 2127-2255; 2269-2400; 2402-2542; 2544-2683; 4121-4194; 4201-4246; 4390-4400.)

After reviewing the evidence in the record, the Commission stated (R. 676-677):

"It is enough for the purposes of the present proceeding (that is, for the issuance of a provisional construction permit, and for the satisfaction of the requirements of the statute and the regulations, that there be reasonable assurance that *the reactor* can be constructed and operated without undue risk to the health and safety of the public." (Emphasis added).

With respect to the issue of financial qualification, the principal finding of the Commission is that, *for the purposes of a provisional construction permit*, there is reasonable assurance that the applicant is financially qualified to engage in the construction and operation of the reactor described in the application, and to receive the allocation of special nuclear material therefor (R. 711; No. 34). The Commission made no finding on specified issue B, namely, whether PRDC is financially qualified to engage in the *proposed activities* or to receive an allocation of special nuclear material. The proposed activities, as shown by the PRDC application, were

"to design, construct, and operate" the reactor described (R. 364, 365).

The Commission found that demonstration of the economic practicability of the fast breeder reactor would increase by many times the available reserves of nuclear fuel, and that proceeding with construction along with research and development will save time in placing the proposed reactor into operation.¹¹

The PRDC brief asserts, in summarizing the decision of the Commission, that the construction permits issued for every one of the eight other developmental power reactors authorized prior to the decision of the court below were similarly provisional permits issued under the terms of Regulation 50.35. (Brief, No. 315, p. 13). The fact, however, is that *none* of those eight permits was limited to the "purposes of the provisional permit." In *all* those permits, 3 issued before the original PRDC permit, and 5 issued thereafter, as well as in all permits issued for research reactors (58 at the time of the decision of the court below) the Commission made the unqualified finding, *at the time it issued the permits*, that it had "information sufficient to provide

¹¹ W. Kenneth Davis, who testified during the hearing as AEC Director of Reactor Development that this was one of the most important programs of AEC, and that "the fast breeder reactor is one of the most promising types for the development of electric power on a commercially feasible basis," (R. 831), subsequently changed his mind. He later declared that emphasis on breeder reactors "could seriously delay our attaining at economically useful nuclear power . . . Since a nuclear electric power industry equal to the current total electric power production capacity is not expected for another 20 to 30 years . . . there scarcely appears to be great urgency for the development of breeders. . . (T)here might develop around 1990 or 2000 A.D. a need for breeders if the uranium production rate could not be increased or could be increased only at a large increase in costs." (*The Forum Memo to Members*, February 1959, p. 45.) In October 1960 the Office of Technical Information of the Commission issued report TID-8209, *Fossil Fuels of the future*, stating p. 2: "Thus the conclusion of this study is that fossil fuels can meet energy requirements in both the United States and the remainder of the world for the rest of the century without difficulty. . . ."

reasonable assurance that a facility of the general type proposed can be constructed and operated at the proposed location without undue risk to the health and safety of the public (*infra*, p. 102).

The Government brief, in its Statement, asserts there have been no injurious accidents in "routinely-operating" reactors, without defining which reactors are of that nature (Brief, No. 454, p. 19). It does concede, however, that a fatal accident occurred on January 3, 1961, when an experimental reactor exploded at the National Reactor Testing Station at Arco, Idaho, killing 3 people, and causing a radioactive cloud to form in the atmosphere, as well as radioiodine contamination in the surrounding area.¹² The fact is that many reactor accidents have occurred, some causing serious injuries to reactor personnel and undetermined injuries to the surrounding population. (*Infra*, pp. 105-108)

3. Pertinent amendments to the Act after issuance of original construction permit

As a result of vigorous criticism from various sources, including members of the Joint Committee on Atomic Energy, concerning the procedure followed by the Commission in granting the construction permit herein, (*supra*, p. 5 a.) Congress amended the Act in several respects.

Section 189 was amended to *require* the Commission to hold a hearing after 30 days notice, and publication once in the Federal Register, on each application for a license for a facility of the kind involved herein, as well as other specified facilities. This includes the issuance of construction permits. (*infra*, p. 95)¹³ There was no hearing prior to the issuance of the original permit in this case.

¹² *Interim Report on SL-1 Incident*, General Manager's Board of Investigation, January 27, 1961, pp. 13-14.

¹³ 42 U.S.C. § 2239; Act of September 2, 1957, 71 Stat. 579, Sec. 7; Senate Report No. 296, May 9, 1957, pp. 24, 25, to accompany S. 2051.

Furthermore, the Act was amended, in Sections 29 and 182 b, to provide for the establishment of the Advisory Committee on Reactor Safeguards (which had been created by the Commission several years earlier) with authority to review applications for reactors of the type involved herein, and to advise the Commission with regard to the hazards of proposed or existing reactor facilities and the adequacy of proposed reactor safety standards. (*infra*, pp. 91-94.) The Committee is required to issue reports on the applications submitted to it, which shall be made part of the record of the application and available to the public, except to the extent security classification prevents disclosure.¹⁴

In this case, the Commission refused to release the report of its Advisory Committee on Reactor Safeguards until October 8, 1956, more than 6 weeks after the Respondents had filed their petitions to intervene (*supra*, p. 3). Under the Commission's regulations in effect at the time the petitions for intervention had to be filed within 30 days after the issuance of the construction permit, that is, no later than September 3, 1956 (AEC Rules of Practice, Section 2.705, Title 10, CFR).

In its report on this amendment, the Joint Committee commented on the need for a statutory committee and for access to its reports, as follows, in part:

"While the Atomic Energy Act of 1954 has over 18 references to health and safety requirements, there was no body specifically established in the act whose primary responsibility would be to study and advise on the health and safety aspects of licensed operations. The Joint Committee deemed it desirable to establish formally such a body as an advisory committee to assist

¹⁴42 U.S.C. §§ 2039; 2232(b); Act of September 2, 1957, 71 Stat. 579, Sec. 5 and 6.

the Commission with respect to those facilities where the hazard is likely to be the greatest.

"Having established the Committee under the bill, it was thought that its functions would be best served if its reports should be made public, and if the facilities of the type on which its report were required should be licensed only after a public hearing . . .¹⁵

Finally, Congress amended the general appropriation authorization in Section 261 of the Act to prevent contractual commitments of government funds without prior appropriation, as was done in the PRDC case to the extent of over \$4 million. That section was amended effective July 3, 1957, to require *specific* authorization, *inter alia*, for sums necessary to carry out cooperative programs for development and construction of reactors to produce electric power, and provide for the undertaking of research and development without full reimbursement, or the waiver of fuel charges.¹⁶ The latter two provisions were included, *inter alia*, in the Commission's agreement with PRDC, which was concluded on March 26, 1957 while the hearings in this case were in progress. (Tr: 5091-5112). The Commission actually committed \$100,000 to this project for *fiscal* 1957, prior to the time the agreement was executed.¹⁷

¹⁵ Senate Report No. 296, pp. 11-14, 24, 85th Cong. 1st Session. Although these amendments became effective September 2, 1957, the Commission did not refer the PRDC application to the Advisory Committee on Reactor Safeguards for any purpose any time thereafter.

¹⁶ 42 U.S.C. § 2017(a)(2). P.L. 85-79; 71 Stat. 274. Report No. 571, June 14, 1957 to accompany H.R. 7992. The report states, in part, "The Chairman of the House Committee on Appropriations had been particularly critical of the authorization procedures and interpretations of the Atomic Energy Act followed by the AEC in previous years." See statement of Clarence Cannon, Chairman of House Committee on Appropriations, sharply criticizing AEC for violations of the Act, 103 Cong. Rec. 5790-5801, April 16, 1957.

¹⁷ 103 Cong. Rec. 5798, April 16, 1957.

4. *Decision of Court of Appeals*

Respondents petitioned the court below to review the decision of the Commission, and stated a number of issues for review (R. 951-953).

The court reversed the Commission, stating:

"Because we think the safety findings insufficient, we must set aside the Commission's grant of a construction permit and remand the case for such further proceedings consistent with this opinion as the Commission may determine. We need not consider other points raised by the petitioners." (R. 965).

The court stated, *inter alia*,¹⁸ that when the Commission authorizes construction of a reactor it must make a finding, as of the time the construction permit is issued, that the Commission "has reasonable assurance that the reactor may be constructed and operated at the proposed site without undue risk to the health and safety of the public." (R. 957).

After reviewing pertinent sections of the Act, particularly Sections 182 and 185, and carefully examining the relevant portions of its legislative history, the court held that when the Commission issues a construction permit, it must, in accordance with Section 182, "find that the utilization or production of special nuclear material . . . will provide adequate protection to the health and safety of the public," or, in the Commission's phrase, that the facility can be "operated at the location proposed without undue risk to the health and safety of the public." (R. 959-960).

The court rejected the contention of the Commission

¹⁸ One ruling of the court was that the decision of the Commission was a final order and aggrieved the Respondents here (R. 955-957). This issue is not before this Court now because it was excluded in the grant of certiorari (R. 972, 973).

that the legislative history relied on related only to "procedural safeguards" of notice, hearings, and appeal." It declared, "We cannot so understand it and cannot suppose the Senate so understood it." (R. 959, footnote).

The court further pointed out that "The possibilities of harm are so enormous that any doubt as to what findings the Act requires, and any doubt as to whether the Commission made such findings, should be resolved on the side of safety." (R. 960)

The court held that the Commission's findings regarding safety of operation are not sufficient. It pointed out that the Initial Decision in this case, dated December 10, 1958, contains this unqualified finding: "22. The Commission finds reasonable assurance in the record that a utilization facility of the general type proposed in the PRDC application and amendments thereto can be constructed and will be able to be operated at the location proposed without undue risk to the health and safety of the public." (R. 960). But in its Opinion and Final Decision, the Commission qualified that finding as follows:

"22. The Commission finds reasonable assurance in the record, *for the purposes of this provisional construction permit*, that a utilization facility of the general type proposed in the PRDC Application and amendments thereto can be constructed and operated at the location without undue risk to the health and safety of the public." (Emphasis in original) (R. 960-961).

The court held that this is not a finding that a facility can be operated at the location selected without undue risk. The court quoted other statements of the Commission which confirmed the conclusion that it no longer found, as it had found in its Initial Decision, reasonable assurance that a facility can be operated at the location without undue risk. (R. 961-962). The court then pointed out that the Commis-

sion also used other expressions which might seem to indicate a positive opinion regarding the safety of operation. (R. 963).

The court concluded that the Commission's findings regarding safety of operation were ambiguous, although, in view of the nature, size, and location of the project, it thought the findings should be uncommonly free from ambiguity. The court declared that the Commission should make the basis of its action reasonably clear, that it did not do so in this case, and that the court must know what a decision means before it can say whether or not it is right or wrong.

Contrary to the PRDC summary of the court's decision (Brief, No. 315, pp. 16, 17), the court below did not hold that the statute required a *definitive* and *final* determination of safety of operation as a prerequisite to issuance of any construction permit. Nor did the court, explicitly or by implication, invalidate the two-stage licensing procedure authorized by the Act.

The court also found that the Commission's safety findings were deficient with respect to the safety of the site on which the reactor is being built. The court pointed out that the Commission, after reviewing the evidence concerning the suitability of the site, stated, "Although the data of these types are not yet complete or conclusive, the record gives reasonable assurance that safe operation of the reactor will be as likely in that location as in any other location." The court declared that this finding was clearly insufficient in view of the absence of a finding that the reactor could be operated without undue risk to the health and safety of the public. (R. 965).

The court stated, in the course of its site discussion, that it was clear from the Congressional concern for safety that Congress intended no reactor should, without compelling reasons, be located where it will expose so large a popula-

tion as is present in this situation to the possibility of a nuclear disaster, and that the Commission did not find compelling reasons for doing so in this case. However, it did not hold that the absence of such finding was the reason for the insufficiency of the Commission's finding on site suitability. The court's conclusion on this point was:

"We need not consider whether even the most compelling reasons for preferring this location could support a finding that the reactor could be operated at this location without 'undue' risk, or with 'adequate' protection, to the health and safety of the public." (R. 965).

Contrary to the Government summary of the decision, (Brief, No. 454, p. 22) the court below did not hold that the safety findings were insufficient because the Commission did not specifically find that there were "compelling reasons" for locating the reactor near a heavily populated area. The PRDC summary, while less categorical, is equally erroneous in asserting that "the court rested its decision on the merits on the additional ground" that a finding of "compelling reasons" was not made. (Brief, No. 345, pp. 17, 18).

Summary of Argument

The issue before this Court is whether or not the Commission made essential safety findings at the time it issued a construction permit for the PRDC reactor. The Commission's basic finding on safety was that "The Commission finds reasonable assurance in the record, for the purposes of this provisional construction permit, that a utilization facility of the general type proposed in the PRDC application and amendments thereto can be constructed and operated at the location without undue risk to the health and safety of the public."

The issuance of a construction permit by the Commission

for a nuclear reactor, with such a finding, is a violation of the Atomic Energy Act of 1954 and the Regulations of the Commission.

Adequate protection for the health and safety of the public was a paramount consideration of the Congress when it adopted the Act. Development of atomic energy for peaceful purposes must be consistent with the health and safety of the public, and no considerations of expediency can prevail over this limitation.

I

A. The basic provisions of the Act for the purposes of this case are Sections 182 and 185. Activities by private persons requiring the use of special nuclear materials must be licensed by the Commission. Section 182 prescribes the content of applications for a license under the Act. With respect to applications for licenses to operate reactors the applicant must state technical specifications including place of use, specific characteristics of the facility, and such other information as the Commission may by regulation deem necessary to enable it to find that the reactor will provide adequate protection to the health and safety of the public.

Section 185 relates to construction permits. It provides that applicants for licenses to construct reactors shall, if the application is otherwise acceptable, be initially granted a construction permit, but this section make no specification of the content of the application.

The basic questions of statutory construction in this case are (1) whether or not the Act provides any safety standard which must be satisfied before a construction permit for a reactor may be issued; and, (2) if so, what that standard is. The first question must be answered in the affirmative. The answer to the second is that the Commission

must find, when it issues a construction permit, that operation of the reactor will provide adequate protection to the health and safety of the public.

The theory of the Act underlying the licensing of reactors is that, once a construction permit is issued, a license for the reactor will be issued if the terms of the construction permit are carried out. Section 185 states 4 conditions for obtaining a license—pursuant to an application for a license to construct a reactor—namely, (1) completion of construction; (2) filing of additional information needed to bring the original application up to date; (3) a finding by the Commission that the facility has been constructed and will operate in conformity with the application, the rules of the Commission and the Act, and (4) absence of good cause being shown to the Commission that the grant of a license will not be in accordance with the provisions of the Act. If these conditions are met, the Commission is required to issue a license.

Up to this point, Section 185 makes no specific reference to standards of safety. However, the last sentence of the Section states that "For all other purposes of this Act, a construction permit is deemed to be a license." One consequence of this provision is to incorporate the substance of Section 182, on license applications, into Section 185. The requirements for licenses set forth in Section 182 become applicable to issuance of construction permits, and these include the finding of adequate protection for health and safety of the public.

B: The legislative history of the Act confirms the view that such a finding must be made by the Commission at the time a construction permit is issued. The Joint Committee on Atomic Energy, in its report on the bill that became the Act, stated that Section 185 requires the issuance of a license if construction is carried out in accordance with the

terms of the construction permit. During the course of debate on the bill in the Senate, it was agreed that Section 182 applies to construction permits.

The rationale for making such a requirement was clearly stated during Congressional debate before passage of the Act, namely, that if essential questions were not resolved at the time the construction permit was granted, and substantial expenditures were made on the basis of the permit, there would be considerable pressure on the Commission to issue the license because of such expenditures.

C. The Commission is authorized to issue regulations "to govern any activity authorized pursuant to this Act . . . in order to protect health and to minimize danger to life and property." Sec. 161i(3). Any regulations promulgated by the Commission must be consistent with the authority which has been delegated to it.

The applicable regulations of the Commission can be interpreted to fall within the Commission's delegation of authority. As heretofore applied by the Commission in other cases, they are valid. However, as interpreted and applied by the Commission in the case at bar, they are not valid.

Regulation 50.40, which the Commission terms "the basic statement of the standards" for both license and construction permits, requires that the processes to be performed, the operating procedures, the use of the facility, and other technical specifications "provide reasonable assurance . . . that the health and safety of the public will not be endangered" and that the issuance of a license "will not . . . be inimical . . . to the health and safety of the public."

On its face, this regulation is in accord with the requirements of Sections 182 and 185 as interpreted above. However, for this case, the Commission interpreted this regulation to mean that where a construction permit for a developmental facility is involved, the only safety findings re-

quired are that construction of the facility will not endanger the health and safety of the public, and that issuance of the construction permit will not involve acts inimical to the health and safety of the public. This interpretation is contrary to the Act and the plain meaning of the regulation, and is therefore invalid.

The Commission carried this error over to its interpretation of its Regulation 50.35, which states the conditions under which the Commission will issue a construction permit where the applicant is not in a position to supply initially all of the technical information otherwise required. It provides that if the Commission is satisfied that it has information sufficient to provide reasonable assurance that a facility of the general type proposed can be constructed and operated at the proposed location without undue risk to the health and safety of the public, and that the omitted information will be supplied, it may issue a construction permit.

Less than 2 months prior to issuing the original PRDC construction permit, and after it had already issued construction permits for 3 nuclear power reactors, the Commission informed the Appropriations Committees of Congress that applicants for licenses to build such reactors had to make very detailed showing of how they would protect their employees and the public from radiation hazards, and have it evaluated, before a license to build would be granted. About 2 months after the issuance of the original PRDC permit, the Commission informed the Joint Committee to the same effect stating specifically that a construction permit may be issued only if there is reasonable assurance that unresolved safety problems can be resolved in a way that will make it possible for the applicant to operate the proposed reactor at the proposed site without undue risk to the health, safety and property of the public. That practice was followed in the issuance of construction permits for all

research and development reactors, including power reactors, except the PRDC reactor.

D. The Commission failed to keep the Joint Committee fully informed in ~~these~~ matters, however. For a short period it sought to withhold from Congress the fact that its Advisory Committee on Reactor Safeguards had given an adverse report on the safety characteristics of the PRDC reactor. Criticism of the procedure followed in the granting of the original PRDC construction permit resulted in several amendments to the Act.

E. Petitioners do not now contend that the Commission complied with its own practice and regulations when it issued the original PRDC construction permit, on August 4, 1956, immediately after which construction began, but do contend that the amended permit issued on May 29, 1959, did comply with the Act and the Commission's regulations.

However, the amended permit was not issued in accordance with the requirements of the Act, or with the requirements of the Commission's regulations. The Commission failed to find, at the time of issuing the amended permit, that the PRDC reactor could operate with adequate protection for the health and safety of the public. This is contrary to the requirements of Sections 182 and 185 of the Act. The Commission found reasonable assurance as to safety only for the purposes of a provisional construction permit, which, in the light of its interpretation of Regulation 50.40, means safety for construction purposes only. The findings of the Commission are not in accord with the applicable regulations, if those are reasonably and validly interpreted.

In any event, the safety finding in this case does not meet the specification of the safety issue determined by the Commission at the outset of the proceeding,--which calls for a finding, as a basic condition for the issuance of a construction permit, that there is information sufficient to provide

reasonable assurance that a utilization facility of the general type proposed by PRDC can be constructed and operated at the Lagoon Beach site without undue risk to the health and safety of the public.

F. The court below held that, at best, the findings of the Commission concerning safety of operation are ambiguous. On the one hand, a finding of safety "for the purposes of a provisional construction permit" and the predictions regarding the future course of scientific development, do not satisfy the requirements of the Act. On the other hand, there are a few expressions which might seem to indicate a positive opinion regarding safety of operation. However, inasmuch as the Commission failed to make the basis of its action reasonably clear, the court is not obliged to determine the validity of the Commission's decision.

II

The holding of the court below that the Commission's safety findings are insufficient is not based on the failure of the Commission to find "compelling reasons" for approving location of the PRDC reactor near a densely populated area. The court neither required a special subordinate finding of such reasons, nor made the absence of such finding an alternative ground of its decision.

After holding that the Commission's safety findings concerning the proposed reactor itself were deficient, the court held that the findings were deficient in an additional respect, namely, with regard to the site at which the reactor is being built. Although the record shows the possibility of a major disaster resulting from a reactor accident, inasmuch as more than 2 million people live within a radius of 30 miles from the site of the reactor, the Commission concluded that "the safe operation of the reactor will be as likely in that location as in any other location." This is not an adequate finding that the reactor will operate safely in the

chosen location. The Government now contends that the proximity of the population demands a higher degree of safety, and the Commission has recently published a proposed regulation which incorporates this principle.

While the court below did state that Congress intended that no reactor should, without compelling reasons, be located near a densely populated area, the court removed this consideration from the area of decision by stating that even the most compelling reasons for locating a reactor at such a place would not be sufficient basis for a finding that a reactor could be operated there without undue risk to the health and safety of the public.

ARGUMENT

I.

THE ATOMIC ENERGY COMMISSION VIOLATED THE ATOMIC ENERGY ACT OF 1954 AND ITS OWN REGULATIONS IN GRANTING A CONSTRUCTION PERMIT FOR THE PRDC REACTOR WITH INADEQUATE SAFETY FINDINGS.

Adequate protection to the health and safety of the public was a paramount consideration of the Congress when it adopted the Act. In more than 18 separate instances the Act requires that the Commission conform its activities, and those of its licensees, to the need for protecting, and prohibiting any action inimical to, the health and safety of the public.

Thus, for example, Section 2b of the Act states a Congressional finding that: 1

"In permitting the property of the United States to be used by others, *such use must be regulated* in the national interest and in order to provide for the common defense and security and to *protect the health and safety of the public.*" (Emphasis added)

Congress finds further, in Section 2d, that :

“The processing and utilization of source, by-product, and special nuclear material *must be regulated* in the national interest and in order to provide for the common defense and security and *to protect the health and safety of the public.*” (Emphasis added)

It is one of the purposes of the Act, as stated in Section 3d, to provide for :

“a program to encourage widespread participation in the development and utilization of atomic energy for peaceful purposes to the maximum extent *consistent* with the common defense and security and *with the health and safety of the public;*” (Emphasis added)

There is nothing in the Act, or its legislative history, that states or infers that participation in the development of atomic energy for peaceful purposes is to be allowed to the detriment of health and safety. Such activity must be “consistent with,” and “must be regulated” to provide for, that objective.

But Petitioners imply that there are considerations of expediency which temper this concern for health and safety. PRDC argues that Congress recognized “the urgent need to accelerate the development of nuclear energy for peaceful purposes” and the importance of speed in such development “in order to maintain American leadership in this field,” and that members of the Joint Committee “acknowledged repeatedly that the United States was engaged in a crucial race for supremacy in peacetime atomic progress” (Brief, No. 315, pp. 26, 27).

Such interests on the part of Congress or the members thereof did not dilute to any degree Congressional insistence on adequate protection of the health and safety of the public.

There is no priority provided for research and development over safety and health.¹⁹

A. *The Act requires a finding by the Commission at the time a construction permit is issued that the reactor will operate with adequate protection to the health and safety of the public.*

The licensing provisions of the Act draw no distinctions, so far as safety requirements are concerned, between commercial reactors and developmental reactors; that is, they draw no such distinctions between reactors whose designs and practical value have been tested and proved to be of practical value, and those in the course of development.

Section 102 of the Act provides that when a facility has been sufficiently developed to be of practical value for industrial or commercial purposes the Commission may issue a license under Section 103. The latter section requires, *inter alia*, that no license may be issued thereunder if it "would be inimical to . . . the health and safety of the public."

Section 104 (b) provides, in part:

"The Commission is authorized to issue licenses to persons applying therefor for utilization and production facilities involved in the conduct of research and development activities leading to the demonstration of the practical value of such facilities for industrial or commercial purposes. In issuing licenses under this subsection, the Commission shall impose a minimum amount of such regulations and terms of license as will permit the Commission to fulfill its obligation under this

¹⁹ The report of the Advisory Committee on Reactor Safeguards stated specifically, with respect to the PRDC reactor, that the development of this reactor should not "be so bold as to risk the health and safety of the public." (R. 392-553).

chapter to promote the common defense and security and to protect the health and safety of the public . . .” (Emphasis added) (*infra*, p. 92)

All applications for licenses are subject to Section 182 of the Act, (*infra*, p. 93) which provides in pertinent part that:

“a. Each application for a license hereunder shall be in writing and shall specifically state such information as the Commission, by rule or regulation, may determine to be necessary to decide such of the technical and financial qualifications of the applicant, the character of the applicant, the citizenship of the applicant, or any other qualifications of the applicant as the Commission may deem appropriate for the license. In connection with applications for licenses to operate production or utilization facilities, the applicant shall state such technical specifications, including information of the amount, kind and source of special nuclear material required; the place of the use, the specific characteristics of the facility, and such other information as the Commission may, by rule or regulation, deem necessary in order to enable it to find that the utilization or production of special nuclear material will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public. Such technical specifications shall be part of any license issued. The Commission may at any time after the filing of the original application, and before the expiration of the license, require further written statements in order to enable the Commission to determine whether the application should be granted or denied or whether a license should be modified or revoked . . .”

The reference in that section to the “license to operate production or utilization facilities” applies to the informa-

tion required in the original applications for reactors, under Sections 103 and 104, as distinguished from the information required by the Act for other activities that must be licensed.²⁰ It is not intended to distinguish operation from construction, for the information required is the kind needed to describe the facility which is to be constructed, namely technical specifications, the location of the facility, etc. PRDC so understood it, for its application for a construction permit included an application for a license to operate the reactor it would build (R. 364, 368, 379, 380).

It is patently absurd to argue, for example, as the Petitioners must in order to sustain their position, that the requirement of Section 182 for information from the applicant as to *place of use* of nuclear materials applies for the *first time* when permission to operate is sought, that is, after construction of the reactor where that nuclear material is to be used.

It should be noted that Section 182 does not mention, generally or specifically, reactors of a "general type" as distinguished from a particular reactor. On the contrary, this Section requires that the license application state the technical specifications "including the specific characteristics of the facility." There is no reference in any provision of the Act to licenses for "general types" of reactors.

Section 185 relates to licenses to construct reactors:

"Construction Permits. All applicants for *licenses to construct* or modify production or utilization facilities shall, if the application is otherwise acceptable to the Commission, be initially granted a construction permit. The construction permit shall state the earliest and

²⁰ These include conduct of research and development activities relating to nuclear processes, use of nuclear and radioactive material for medical, biological, industrial, agricultural, health and military purposes, and for such other uses as the Commission may determine to be appropriate to carry out the purposes of the Act (42 U.S.C. §§ 2051, 2073, 2092, 2093).

latest dates for the completion of the construction or modification. Unless the construction or modification of the facility is completed by the completion date, the construction permit shall expire, and all rights thereunder be forfeited, unless upon good cause shown, the Commission extends the completion date. Upon the completion of the construction or modification of the facility, upon the filing of any additional information needed to bring the original application up to date, and upon finding that the facility authorized has been constructed and will operate in conformity with the application as amended and in conformity with the provisions of this chapter and of the rules and regulations of the Commission, and in the absence of any good cause being shown to the Commission why the granting of a license would not be in accordance with the provisions of this Act, the Commission shall thereupon issue a license to the applicant. For all other purposes of this Act a construction permit is deemed to be a 'license'." (Emphasis added).

It is evident that this Section is merely a supplement to Section 182 with respect to license applications. It makes no reference to any information required in the original application. The section specifies certain conditions for obtaining a license, not a license to operate.²¹ These conditions are (1) completion of the construction; (2) filing of additional information needed to bring the original application up to date; (3) a finding that the facility has been constructed and will operate in conformity with the application, the rules of the Commission and the Act; and (4) absence of good cause being shown to the Commission that the grant of a license will not be in accordance with the provisions of

²¹ Both the Government and PRDC occasionally read in the words "license to operate" where the Act says only "license". (Brief, No. 151, pp. 23, 26, 37; Brief No. 315, p. 29).

the Act. The section concludes with the provision that for all other purposes, *a construction permit is deemed to be a license.*

In other words, this section provides that if the conditions of the construction permit and the requirements of the law are met, *a license will be issued on completion of construction.*

It should be noted that this section,—on which Petitioners raise their entire superstructure of argument rationalizing different standards for construction permits and operating licenses—does not contain a single reference to a license to operate. Its opening provision is that “*applicants for licenses to construct*” reactors “*shall . . . be initially granted a construction permit, and then, if all the stated conditions are fulfilled, ‘the Commission shall thereupon issue a license to the applicant.’*” It is apparent that the issuance of a license is the culmination of the application for a “license to construct,” which phrase was used by Congress to comprehend both construction and operation. Save for the specific exceptions provided in this Section, there is no statutory authorization for distinguishing between construction and operation. In other words, for all other purposes, the phrase used by the Commission in its regulations—construct and operate—is not severable.

The Commission construes this section to mean that it provides no statutory safety standard. The Commission asserts that its rules are designed to provide for Commission determination of the form and scope of a construction permit preliminary to a Section 104 license *as appropriate in a particular case*, depending upon the particular state of research and development currently available to the proposed project. (R. 642, 643). In other words, the Commission infers it has uncontrolled discretion as to the terms of a construction permit.

The Government's brief is more explicit on this point. It

declares, "The absence of specific standards governing the grant of construction permits was evidently designed to give the Commission the *broadest discretion* in formulating appropriate safety standards at this stage of the proceeding." (Brief, No. 454, p. 50) (emphasis added).

Such an interpretation is completely untenable. It is inconceivable that, preoccupied as Congress was with the problem of protecting health and safety, it would have intended that there be no statutory safety standard for, and no limit on the Commission's discretion in regard to, the issuance of construction permits. If that were in fact its intention, the delegation of authority to issue such permits would be invalid.

Even when Congress fails to specify standards in a delegation of authority, this Court will not impute to it a purpose to give unbridled discretion. *Kent v. Dulles*, 357 U.S. 116, 128, 129; when the power of Congress is delegated, "the standards must be adequate to pass scrutiny by the accepted tests." (p. 129). Cf. *Panama Refining Co. v. Ryan*, 293 U.S. 388, 420-430; *Centwell v. Connecticut*, 310 U.S. 296, 307; *Nemotko v. Maryland*, 340 U.S. 268, 271-273.

The PRDC position is ambiguous. On the one hand, it does not claim there are no safety standards prescribed by Section 185. Instead, it asserts that the provisions of that Section "on their face call for rather than forbid the type of regulatory structure erected on them by the Commission in Section 50.35 of its regulations." (Brief, No. 315, p. 34). Respondents submit there is nothing on the face of those provisions justifying that statement. The statement reveals, however, that PRDC recognizes that a statutory safety standard must be found. PRDC also asserts, nevertheless, that "the question of the safety of this reactor is not presented at all at this stage of the proceedings." (Brief, No. 315, p. 22). This appears to mean that no safety de-

terminations need be made when a construction permit is issued.

The only interpretation that comprehends both the language of the Act and the purposes of Congress is that Section 182 applies to construction permits as well as licenses to operate. This is emphasized beyond peradventure of doubt by the last sentence of Section 185 providing that "For all other purposes of this Act, a construction permit is deemed to be a 'license' ". It is Section 182, therefore, which prescribes the safety standard. The standard is that the information specified by that Section for reactor applications is required "in order to enable (the Commission) to find that the *utilization or production* of special nuclear material will . . . provide adequate protection to the health and safety of the public." In the absence of such a finding, a construction permit cannot be issued. Utilization or production of special nuclear material requires, of course, *operation* of a nuclear reactor.

It is urged by Petitioners that Section 185 authorizes a two step procedure, (1) construction permit, (2) operating license, and that the safety determination need not be made until the operating license is to be issued. This interpretation distorts the plain meaning of the words. The purpose of the second step is to determine primarily whether or not the terms of the construction permit have been complied with.

The conditions precedent to the issuance of a license do not contemplate postponing the crucial safety findings to the second step. The first is completion of construction, which is self-explanatory. The second is filing of additional information needed to bring the original application *up to date*. Bringing information up to date cannot reasonably be construed to mean supplying essential information for the first time, as Petitioners appear to construe it. It comprehends informing the Commission of *changes* in the

information previously supplied. The third condition is that the Commission find that the facility authorized has been constructed and will operate *in conformity with the application* as amended, and in conformity with the Act and the regulations of the Commission. The finding required means, in effect, that the *terms of the construction permit have been carried out*.

It is the 4th condition on which the Petitioners place their main reliance. They urge that the clause "in the absence of good cause being shown to the Commission why the granting of a license would not be in accordance with the provisions of this Act" is intended to assure that the statutory criteria for safe operation would be met before operation is permitted (Brief, No. 454, p. 50). This interpretation completely inverts the statutory language. It indicates that the Commission must on its own initiative make an independent investigation and determination, for the first time after completion of construction, that the reactor will operate safely. The Government goes so far as to say that this condition requires "*a showing . . . of the absence of 'good cause' why the license should not issue.*" (Brief No. 454, pp. 56, 57). This is indeed an argument *in extremis*!

On the contrary, this clause does not contemplate that the Commission shall take the initiative. The good cause for not granting the license must be shown to the Commission. If the previous 3 conditions are met, and no one appears to show cause to the contrary to the Commission, the Commission *shall* thereupon issue a license to the applicant. Issuance of the license becomes mandatory. This condition does not place the burden on the Commission, or on the applicant, to show that the reactor will operate safely. The burden is on some objector to establish that the reactor does not provide adequate protection to the health and safety of the public. It provides a safeguard in the event the Commission has failed to perform its duties "in

accordance with the *provisions of the Act*." This phraseology emphasizes the difference from the third condition, which requires "conformity with the provisions of this Act and the rules and regulations of the Commission," whereas the fourth condition omits reference to the rules and regulations of the Commission. This deliberate omission gives further indication that the Commission does not have statutory authority to interpose its rules and regulations as the basis of "good cause" for denying permission to operate a reactor.²²

The foregoing, Respondents submit, is the proper interpretation of the "good cause" condition, and clearly exposes the untenability of the argument that Congress intended to rely on such frail machinery to achieve its safety objective. It is not conceivable that Congress, intent as it was to protect the health and safety of the public from the hazards of radiation, and having made that an explicit condition a score of times in the Act, would at this critical juncture have obscured the intention ascribed to it by Petitioners by referring merely to the "Act", and referring to regulations which the Commission might, or might not, adopt. (Brief, No. 454, pp. 50, 55, 56; Brief, No. 315, p. 34).

They give the "good cause" clause a significance wholly unwarranted by the context. The broadness of the statutory language does not permit the tearing of words out of

²² The Government calls attention to the language of Section 319(c) of the Communications Act, 47 U.S.C. 319(c) providing that an operating license shall be issued to the holder of a construction permit unless a "cause or circumstance arising or coming to the knowledge of the Commission since granting of the permit would . . . make the operation of such station against the public interest." The Government concedes that "under that provision, an application for a permit is 'in substance' an application for an operating license." (Brief, No. 454, p. 56) That language is certainly no more restrictive than the clause "in the absence of any good cause being shown to the Commission why the granting of a license would not be in accordance with the provisions of the Act," and is, in fact, less so. There is no such difference between the respective clauses as to show any Congressional intent to apply different standards.

context (*Chatain v. U.S.*, 326 U.S. 455, 463-464): "in expounding a statute, we must not be guided by a single sentence or member of a sentence." (*Mastro Plastics Corp. v. NLRB*, 360 U.S. 270, 285.)

Finally, there is no language in Section 182 or 185, or any other Section of the Act, which expressly or inferentially authorizes so-called provisional findings of safety as a condition for issuing construction permits.

B. The legislative history of the Act confirms the view that the Commission must make, at the time the construction permit is issued, a finding that the reactor can operate with adequate protection to the health and safety of the public.

It is instructive to consider, first, some of the statements made during the course of the Congressional hearings on the bill that later became the Act. Mr. Paul W. McQuillen, chairman of the group which initiated the PRDC project (Dow Chemical-Detroit Edison Associates), expressed the opinion that people who were going to invest money would want the assurance that when they had the facility built in accordance with the requirements of the permit, they would be able to operate it. Mr. Cole, Chairman of the Joint Committee, asserted that under the pending bill that would be the case.²³

²³ "Representative Hinshaw: *One of the reasons why a construction permit is desired, I presumed, would be to make sure that the place in which the construction was to take place was a safe one from the public standpoint, that is that it would be in a locality or a location that would be entirely safe, and also that the facilities in connection with the construction would be such that deleterious effects would not be had from the products that escape through flues and stacks and so forth, and pollution of streams and so on. Is that not true?*

"Mr. McQuillen: Undoubtedly.

"Representative Hinshaw: Then a license to build or acquire a production facility, if this is to be a use of Government material, which the

All witnesses who addressed themselves to this point took the same position.²¹

The Joint Committee itself was of the same mind. In its report on the bill it stated:

"Section 185 . . . requires the issuance of a license if the construction is carried out in accordance with the terms of the construction permit." (Emphasis added) (1 Leg. Hist. 997, H. R. Rept. No. 2181, p. 28, 83rd Cong. 2d. Session)

This interpretation was emphasized during the course of debate in the Senate; when Senator Hickenlooper, manager of the bill, asserted, in response to a statement by Senator Humphrey, that a construction permit is equivalent to a

bill is entirely based upon, is another factor that should enter it, should it not?

"Mr. McQuillen: Yes, sir. I think the difference in the point of view is perhaps really very slight. The Act has quite thoroughly picked up all the different points of material import to the construction and operation of a large facility in each section or chapter as it went along. A man undertaking to go into the business, of course, thinks of everything that he is going to need in order to set himself up in business. If they were all passed on together, he would have one set of conditions with the assurance of a right to operate at the end of it . . .

"I think there might be 9 conditions of one license all laid out in advance. So once that had been determined, then the people who were going to invest the money and do the construction would be able to go ahead. All they would have to do would be the same as a building meeting an architect's specifications, they would have to tick off their accomplishment against the specifications that had been laid down, but they would have the assurance that when the building was finished it would be paid for. *In this case they would have the assurance that when they had the facility finished in accordance with each of their requirements they would be able to run it.* . . .

"Chairman Cole: Would you mind my interruption. Why cannot that be done under the terms of the bill as it is now?"

"Mr. McQuillen: I think it undoubtedly would be so operated.

"Chairman Cole: *Of course it would.*" (Hearings before Joint Committee on Atomic Energy on S. 3323 and H.R. 8862, 83rd Cong., 2d Sess., pp. 119-120; 2 Leg. Hist. 1752, 1753) (Emphasis added).

²¹ Ibid., pp. 227, 417; 2 Leg. Hist. 1860, 2051.

license. Senator Humphrey had introduced an amendment to Section 185 providing that:

“ . . . No construction permit shall be issued by the Commission until after the completion of the procedures established by Section 182 for the consideration of applications for licenses under this Act.” (100 Cong. Rec. 12014, 3 Leg. Hist. 3759)

Senator Humphrey then had the following colloquy with Senator Hickenlooper:

“Mr. Humphrey: Mr. President, at the time I drew up this amendment I was not aware of the modifications which had been made to Section 182 and also to the judicial review section, which later I discussed with the Chairman of the Committee. The purpose of the amendment when it was prepared was to make sure that the construction of a facility was not permitted prior to the authorization of a license, because *had that been done what it would have amounted to would be getting an investment of a substantial amount of capital, which surely would have been prejudicial in terms of the Commission issuing a license. In other words, if the Commission had granted the construction permit for some form of nuclear reactor, and then the question of a license was not fully resolved, surely there would have been considerable pressure, and justifiably so, for the Commission to have authorized the license once it had authorized the permit for construction.*

“The Chairman of the Committee tells me he has modified the Committee amendments to the bill, of which at that time I was not aware. *The Chairman indicates to me that under the terms of the bill as amended, the construction permit is equivalent to a license. In other words, as I understand, under the bill a construction permit cannot be interpreted in any other*

way than being equal to or part of the licensing procedure. Is that correct?

“Mr. Hickenlooper: *The Senator is correct. The staff has worked on this matter. An amendment was offered on, I believe, July 16, to Section 189, having to do with hearings or judicial review, and that section was tied up with other sections of the bill. A license and a construction permit are equivalent. They are the same thing, and one cannot operate until the other is granted.*

“The same is true with reference to hearings. Therefore, we believe, and we assure the Senator, that the amendment is not essential to the problem which he is attempting to reach . . .

“Mr. Humphrey: In other words, the revised sections on judicial review and on hearings and on *revised Section 182 on license application all apply directly to construction permits.*

“Mr. Hickenlooper: Yes.

“Mr. Humphrey: *With that statement Mr. President I withdraw my amendment. The only purpose of the amendment was to clarify that section. I am grateful to the Chairman for having done it before the amendment was considered.*” (100 Cong. Rec. 12014, 3 Leg. Hist. 3759-60) (Emphasis added).

In highly strained efforts to obviate the impact of this history, the Petitioners seek to establish that the plain import of the language of Senator Humphrey and the response of Senator Hickenlooper should be disregarded, and that emphasis should be placed on unrelated portions of the legislative history concerning proposals of a different nature. Their contention that the colloquy related merely to procedural safeguards of notice, hearings, and appeal distorts the obvious purport of the discussion.

Humphrey was very explicit that his proposed amend-

ment was intended to make sure that the "construction of a facility was not permitted prior to the authorization of a license" because if a construction permit were granted before the question of a license was resolved "there would have been considerable pressure, and justifiably so, for the Commission to have authorized the license once it had authorized the permit for construction" because of the "investment of a substantial amount of capital" for construction.²⁵

The proposed amendment, and the reasons behind it, were not procedural. Senator Humphrey did not discuss procedure. It was a substantive matter, and Senator Hickenlooper recognized this when he stated that Senator Humphrey's proposed amendment "is not essential to the problem which he is attempting to reach." He explicitly distinguished this matter from the question of hearings by stating, "The same is true with reference to hearings."

Furthermore, Humphrey's statement, with Hickenlooper's agreement, that Section 182 applies "directly to construction permits" confirms the conclusion that the safety standard set forth in that Section applies to construction permits. Representative Hinshaw, member of the Joint Committee, made it clear that one of the reasons a construction permit was desired was to *make sure* that the location of the reactor "would be entirely safe," and that "deleterious effects would not be had from the products that escape through flues and stacks and so forth, and pollution of streams and so on (*supra*, p. 39 n.)

The court below drew the proper conclusion from this history that "If, as this indicates, Section 182 applies 'directly to' construction permits, when the Commission issues a construction permit it must 'find that the utilization or production of special nuclear material . . . will provide

²⁵ Senator Jackson argued to the same effect. 100 Cong. Rec. 11157, 3 Leg. Hist. 3528.

adequate protection to the health and safety of the public', or, in the Commission's phrase that the facility can be 'operated at the location proposed without undue risk to the health and safety of the public.''' (R. 959, 960)

PRDC does attempt a rationalization of Humphrey's remarks which results in a complete distortion. PRDC contends that his reference to pressure relates to a *particular type of reactor*, namely commercial reactors. An applicant, it says, could genuinely be misled into making a commercial investment in reliance on a construction permit, and might bring pressure on the Commission to issue an operating license to the detriment of a competing applicant (Brief, No. 315, p. 44).

Three short comments should suffice to dispose of this attempt. First, the colloquy quoted above, in its context, did not make the remotest reference to commercial reactors. Second, PRDC thus inferentially admits the validity of Humphrey's stated reason, for if pressure may be brought to obtain an operating license for a commercial reactor, it is at least as likely that pressure will be exerted to obtain an operating license for a developmental reactor, the cost of which is likely to be at least as monumental as that of the former. Third, as shown below, the Commission recognizes no distinction in requirements for technical information and safety between a commercial reactor and a developmental reactor.

The entire argument of PRDC seeking to establish that only procedural problems were involved, piles one hypothesis on another in an effort to tie together unrelated strands of legislative history, while studiously avoiding the natural meaning of the words used in the colloquy between Humphrey and Hickenlooper. Finally, however, PRDC appears to recognize the futility of its effort by urging, after all, that the legislative history is not helpful in solving the problem in this case. (Brief, No. 315, p. 47)

C. The Act does not authorize the interpretation given by the Commission in this case to Regulation 50.35

Section 161 of the Act authorizes the Commission to:

"1. prescribe such regulations or orders as it may deem necessary . . . (3) to govern any activity authorized pursuant to this Act, including standards and restrictions governing the design, location, and operation of facilities used in the conduct of such activity, in order to protect health and to minimize danger to life or property . . ." (Emphasis added)

At the time the Final Decision in this case was issued, the Commission had not issued any regulations or standards governing the design and location of power reactors, and there are none in effect today.

The applicable Commission regulations are of a very general nature. All applications for reactors, whether developmental or commercial, are subject to the same basic regulations. The regulations do not—any more than the Act does—provide any special consideration for developmental reactors from the point of view of the safety findings required.

Section 50.40 of the Commission's regulations (10 CFR, 50.40, *infra*, p. 98) which the Commission describes as "the basic statement of the standards under which the Commission will issue both licenses and construction permits" (R. 643), provides:

"Common standards. In determining that a license will be issued to an applicant, the Commission will be guided by the following consideration:

"(a) The processes to be performed, the operating procedures, the facility and equipment, use of the facility, and other technical specifications, or the pro-

posals in regard to any of the foregoing collectively, provide reasonable assurance that the applicant will comply with the regulations in this chapter, including the regulations in Part 20, and that the health and safety of the public will not be endangered.

“(b) The applicant is technically and financially qualified to engage in the proposed activities in accordance with the regulations of this chapter.

“(c) The issuance of a license to the applicant will not, in the opinion of the Commission, be inimical to the common defense and security or to the health and safety of the public.”

Under this regulation the Commission must consider, *inter alia*, (1) the processes to be performed, (2) the operating procedures, and (3) use of the facility, and whether these endanger the health and safety of the public. These are matters which relate to *operation* of a facility, not to its construction, and are some of the matters to be considered in determining if the issuance of the license will “be inimical . . . to the health and safety of the public.” Since this regulation applies to construction permits, it is clear that safety of operation must be considered in connection with the issuance of construction permits.

Recognizing, apparently, that the PRDC permit was issued in violation of this regulation, the Commission sought to interpret it to meet the exigencies of its position. It declared, in its Final Decision, that:

“Under that regulation, *where a construction permit for a developmental facility is involved*, [Emphasis added] the Commission must be assured that (a) the *construction* of the facility will not endanger the health and safety of the public, (b) the applicant for the permit is technically and financially qualified to engage in the proposed *construction*, and (c) the issuance of the

permit for *construction* will not involve acts inimical to the common defense and security or to the health and safety of the public." (Emphasis in original, except as indicated) (R. 644).

This is a patent distortion. There is no reference in the regulation to "construction permit for a developmental facility," and there is no basis for reading the word "construction" into it as indicated. There is no provision in the Act, or in any other part of the Commission's regulations, which requires applicants to supply information relating to safety of construction. Furthermore, it is difficult to conceive how the construction of the housing of a reactor can involve acts inimical to the common defense and security of the United States. It is evident that this is a tongue-in-cheek interpretation because none of the construction permits issued in this case, the original permit (R. 516-523), amended permit dated December 10, 1958 (R. 607-629; 918-938), and the amended permit dated May 26, 1959, (R. 630-720) contained any finding concerning, or even any intimation that the Commission had considered, the hazards of construction as such. The fact that the Respondents made no contention that such hazards existed would not have relieved the Commission of the necessity of making the findings if Regulation 50.40 did, in fact, require them. The only comment on this matter made by the Commission was that the Respondents had admitted that there were no hazards during construction save those usually associated with heavy construction (R. 648).

PRDC makes no effort to defend the Commission's interpretation of this regulation and fails even to mention it. The Government likewise makes no defense or explanation.

The artificiality of this interpretation is highlighted by the fact that neither the Act, nor the Commission's regulations, *require* a construction permit for the building of a

reactor, up to the point special nuclear materials are used. Section 101 of the Act requires a license "to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess, use, import or export any utilization or production facility." There is no reference to construction. One private research reactor was built without a construction permit, and a license was not applied for until the construction was completed. On September 4, 1958, the Commission issued a construction permit to Babcock & Wilcox Co. in which it found that the applicant had "submitted sufficient information to provide reasonable assurance that the reactor can be constructed and operated at the proposed location without undue risk to the health and safety of the public," and specified that the earliest completion date was the same day, September 4, 1958. A license to operate was issued on the following day. (*Babcock & Wilcox Co.*, CPRR 28, 23 F.R. 6380) This was in accord with the Act, inasmuch as after the "license to construct" was filed, a construction permit was "initially granted" in which a finding of reasonable assurance of safety of operation of the reactor was made, after which the Commission did "thereupon issue a license to the applicant." (Sec. 185)

The position of Respondents is supported by Regulation 50.34 (10 CFR 50.34, *infra*, pp. 96-97) which sets forth the requirements for technical information in all applications for reactors. It requires, *inter alia*, a sufficiently detailed description of all technical aspects and operating processes to permit (1) "evaluation of the radioactive hazards involved," (2) "evaluation of the adequacy of the various means proposed to minimize the probability of danger from radioactivity to persons both on and off-site"; (3) "evaluating the existence and effectiveness of safeguards against radioactive hazards in the operation of the facility," etc. These are all matters relating to operation. There is nothing

ing, either in this regulation or any other regulation of the Commission, requiring information from an applicant relating to the safety of *construction* of a reactor. It is evident the Commission did not believe such finding was required.

The regulation to which most attention has been directed is 50.35 (40 CFR 50.35, *infra*, pp. 97-98). This is titled "Extended time for providing technical information," and provides:

"Extended time for providing technical information. Where, because of the nature of a proposed project, an applicant is not in a position to supply initially all of the technical information otherwise required to complete the application, he shall indicate the reasons, the items or kind of information omitted, and the approximate times when such data will be produced. *If the Commission is satisfied that it has information sufficient to provide reasonable assurance that a facility of the general type proposed can be constructed and operated at the proposed location without undue risk to the health and safety of the public, and that the omitted information will be supplied, it may process the application and issue a construction permit on a provisional basis without the omitted information subject to its later production, and an evaluation by the Commission that the final design provides reasonable assurance that the health and safety of the public will not be endangered.*" (Emphasis added)

This regulation is intended to provide for situations in which all of the necessary technical information is not submitted in the application. Under it, the Commission may allow the applicant additional time, and issue a construction permit before getting the information, *only* if the Commission is *satisfied it has information sufficient to provide reasonable assurance that a facility of the general type pro*

posed can be constructed and *operated* at the proposed location without undue risk to the health and safety of the public. Respondents submit that this is the only reasonable conclusion to be drawn from that language.

The phrase "without undue risk to the health and safety of the public" is equivalent to the statutory requirement of "adequate protection to the health and safety of the public" (Section 182a, *infra*, p. 96). The court below so concluded (R. 958), and none of the parties has raised any question on that score.

Petitioners lay great stress on the fact that Regulation 50.35 requires an initial finding of safety only with respect to the "general type proposed," and argue that this is substantially different from a requirement of a safety finding for "the reactor" proposed. Respondents submit that this is a verbal distinction emphasized for the purposes of this case, and that the Commission issues its construction permits, in fact, for the particular reactor proposed by an applicant.

In the first place, PRDC did not apply for a license merely to construct a general type of reactor. It proposed "to build, own, and *operate* a developmental fast neutron breeder reactor which will produce the heat energy required to generate 100,000 kw. electric power" (R. 364) (Emphasis added), the design of which was described *in detail* in the application² (R. 371, 372; Tr. 5195-5302). The report of the Advisory Committee on Reactor Safeguards related to the specific reactor proposed by PRDC (R. 587-593).

The original construction permit contained the following authorization for construction (R. 519):

"The general type of facility authorized for construction is a fast neutron breeder reactor, more fully described in Report APDA-108, designed to operate at

"300,000 KW equivalent of thermal energy and furnish approximately 100,000 kilowatts of electrical energy, and which will use uranium enriched in the isotope uranium 235 as fuel."

Although the phrase "general type" is used, it is apparent that the Commission was authorizing construction of the reactor described in detail to Report AFDA-108, which was part of the PRDC application. The same authorization was contained in the construction permit as amended on May 26, 1959 (R. 716).

After the original construction permit was issued, without a finding of safety of operation, the Commission advised the Joint Committee on October 1, 1956 that under its practice and regulations it may issue a construction permit *after* "it believes there is reasonable assurance that the unresolved safety problems can be resolved in a way that will make it possible for the applicant to operate the proposed reactor at the proposed site without undue risk to the health, safety, and property of the public."

The Opinion and Final Decision of the Commission clearly reveals that its action was taken with respect to the particular reactor proposed. Although in its discussion it made occasional references to the "type" of reactor proposed, the burden of the opinion relates to the specific reactor. Thus, it goes into considerable detail on the PRDC design (R. 666 ff.) and the "safety of the proposed reactor" (R. 669 ff.). It discusses "the spectrum of expert testimony on the safety of the proposed PRDC design" (R. 672), and states that witnesses for PRDC testified that

1. A Study of AEC Procedures and Organization in the Licensing of Reactor Facilities, Joint Committee on Atomic Energy, 85th Cong., 1st Session (Joint Committee Print 1957), p. 197.

"the specific reactor proposed could be safely operated" (R. 673-676).

The Commission then concludes (R. 676, 677):

"It is enough for the purposes of the present proceeding (that is, *for the issuance of a provisional construction permit*), and for the satisfaction of the requirements of the statute and the regulations that there be reasonable assurance that *the reactor* can be constructed and operated without undue risk to the health and safety of the public." (Emphasis added)

In addition, the Commission made specific findings with reference to the reactor proposed (financial qualifications, R. 685, 708; construction and design, Findings 10, 12, 13, 21, 29, R. 704, 710; operation, Findings 14, 21, R. 704, 708).

The Commission has not, indeed, even made a clear statement of what it means by "general type" or "type." It made several references to fast breeder neutron reactors known as EBR-I, EBR-II and Dounreay (R. 702-706) but nevertheless stated that none of them is a "direct prototype of the PRDC reactor" (R. 703). It is therefore not clear what a finding concerning a general type means.

In short, since the Act makes no provision for safety findings for "general types" of reactors, and since the Commission in fact makes its determinations with respect to the particular reactor proposed, the safety finding which is a condition precedent to the issuance of a construction permit must relate to the specific reactor proposed. This was confirmed by the Commission's statement in its Final Decision that it is enough "for the satisfaction of the requirements of the statute and the regulations that there be reasonable assurance that *the reactor* can be constructed and operated without undue risk to the health and safety of the public." (R. 676-677)

Finally, the Commission regulations include a provision which substantially contradicts the labored interpretations made by the Petitioners here and the Commission in its Final Decision. Regulation 50.56 (10 C.F.R. 50.56; *infra*, pp. 98-99) provides as follows:

"Conversion of construction permit to license or amendment of license. Upon completion of the construction or alteration of a facility, in compliance with the terms and conditions of the construction permit and subject to any necessary testing of the facility for health or safety purposes, the Commission *will*, in the absence of good cause shown to the contrary issue a license of the class for which the construction permit was issued or an appropriate amendment of the license, as the case may be." (Emphasis added)

This regulation clearly places the primary emphasis on completion of construction, in compliance with the terms and conditions of the construction permit, and a determination to that effect, as the basis for a license; the issuance of which would appear, from this regulation, to be almost automatic. Petitioners completely ignore this regulation.

1. *Proposed amendment of Regulation 50.35.* Shortly after its Final Decision in this case, the Commission advised the Joint Committee that Regulation 50.35 does require a finding, at the time the construction permit is issued, that there is reasonable assurance of safe operation. On February 11, 1960, the Commission published a notice of proposed rule-making, providing an amendment of Regulation 50.35. (25 Fed. Reg. 1221; *infra*, pp. 100-101) The principal purpose of the amendment was to eliminate the requirement for a finding of safety of operation at the time a construction permit is issued, and to authorize

issuance of a construction permit with no approval required save for that of the site. The matter came before the Joint Committee, and the Commission spokesman gave the following explanation:

"Under current regulations the criteria for the issuance of a construction permit, briefly stated, are, first, a reasonable assurance that the facility of the general type proposed can be constructed and operated at the proposed location without undue risk to the health and safety of the public.

"You will note there is an inference in the current regulation, and *there is an indication that the problems involved in safely operating the facility can be adequately reviewed and taken into account at the time the construction permit is issued.* Experience has indicated that is asking both the applicant, the Commission, and for that matter, the ACRS, to go farther than technology actually permits at this time.

"So the criteria in the proposed regulation is reasonable assurance that the proposed location is suitable from a safety standpoint for a facility of the size and general design concept proposed."²⁷ (Emphasis added)

Respondents submit that this explanation substantially nullifies the elaborate rationalizations in which the Petitioners engage in their briefs to this Court.

The fact that its administration of the Act persuaded the Commission that its previous interpretation is not prac-

²⁷ Hearings on Development, Growth and State of the Atomic Energy Industry before the Joint Committee on Atomic Energy, 86th Congress 2nd Session, pp. 103-105, February 17, 1960. Senator Anderson, then Chairman of the Joint Committee, was highly critical of the proposed amendment (Id. pp. 105-109).

licable does not validate a proposal that is not authorized by the Act. "Administration may reveal gaps or inadequacies of one sort or another that may call for amendatory legislation. But it is no warrant for extending a statute that experience may disclose should have been made more comprehensive". *Addison v Holly Hill Fruit Products, Inc.* 322 U.S. 607, 617.

The proposed amendment was abandoned after the decision of the court below was issued. However, this matter arose again before the Joint Committee recently, and Mr. Olsen, member of the Commission, who was its general counsel when the Final Decision in the PRDC case was issued, made the following statement concerning construction permits, in response to questions by Senator Anderson on an application for a reactor to be located at Peach Bottom, Pennsylvania:

"We are still operating under the original rule which requires that a finding be made that there is reasonable assurance, in effect, that this research program will be successful. We are pre-gauging the research program."²⁸

The colloquy between Mr. Olsen and Senator Anderson, the significant part of which is reprinted in the margin, indicates a concession by Mr. Olsen that the original rule was not followed in the PRDC case.²⁹

²⁸ Hearings on Development, Growth, and State of the Atomic Energy Industry, 87th Cong. 1st Session, p. 73 official transcript. February 21, 1961.

²⁹ Senator Anderson. You say, 'I would like to point out that such considerations not involved in the question of the site itself are likely to result in a considerable delay in the high temperature gas reactor project proposed for construction at Peach Bottom, Pennsylvania.'

"I assume by that you do anticipate some delay?"

"Mr. Wilson (AEC Commissioner). Yes, we do."

"Senator Anderson. Therefore, you are proceeding in this case the

The Respondents submit, in the light of the foregoing, that the Commission's regulations require a finding, at the time the construction permit is issued, that the proposed reactor can be operated with adequate protection—without undue risk—to the health and safety of the public. To interpret them otherwise is to render them invalid.

The regulations promulgated by the Commission must be consistent with the Act. Otherwise, the regulations are not authorized by the statute, and are invalid. *Kent v. Dulles*, 327 U.S. 116; *Brannan v. Stark*, 342 U.S. 451; *Ad-dison v. Holly Hill*, 322 U.S. 607; *Manhattan Gen-eral Equipment Co. v. C.I.R.*, 297 U.S. 129, 134.

way we tried to get the Commission to proceed in the Fermi (PRDC) reactor case.

Mr. Wilson. We have substantially changed our regulatory procedure. I think Mr. Olson might better reply to that.

Senator Anderson. You tried to change it a year ago, Mr. Olson and didn't get away with—didn't succeed with it.

Mr. Olson. I don't think we tried to get away with something. We have not put in effect the rule that was up for consideration at that time.

Senator Anderson. You submitted some regulations. Was any warning given us that if those regulations had been adopted you could do in the Fermi case and in the Peach Bottom case exactly what they tried to do in the Fermi case?

Mr. Olson. Mr. Anderson, you are a very hard lawyer to operate against because you see a lot of things that we don't seem to see. We didn't realize until we got up here that this would permit a parallel of the PRDC case. As a result of the good counsel you gave us that rule has not been put into effect.

We are still operating under the original rule which requires that a finding be made that there is reasonable assurance, in effect, that this research program will be successful. We are pre-gauging the research program.

Senator Anderson. All I want to point out is not being a lawyer I can speak freely on any legal point. This struck me as a very interesting development. What I am trying to get to is that I think the Commission in this matter of the Peach Bottom case has proceeded the way it ought to proceed. It ought to know the situation is completely safe. Until the Reactor Safeguards Committee comes in and says we think it is safe, I think the Commission has a perfect right and a great obligation to say, we agree we should take our time and be very sure of it." (Emphasis added) (Id. pp. 72-74)

There is nothing in the Act authorizing the issuance of construction permits with findings of safety limited to the construction period. To the extent that the Commission so interprets and applies its regulations, they are invalid.

Where the safety policy is so strongly stated by Congress as in this Act, and where the possibilities of harm are so enormous, any doubt as to what findings the Act requires should be resolved on the side of safety. A similar approach was demonstrated by this Court in *Shields v. Atlantic Coast Line Railroad* 350 U.S. 318, in construing the Safety Appliance Act of 1910. Section 2 of that Act provided that "... all cars requiring ... secure running boards shall be equipped with such ... running boards". Section 3 delegated authority to the Interstate Commerce Commission to designate "number, dimensions, locations and manner of application of the appliances provided by Sec. 2." The issue was whether running boards around the domes of tank cars were within Section 2, despite the fact that ICC regulations were silent about dome running boards. It was held that nevertheless the court could, and it did, determine that such running boards were within the sweep of Sec. 2, and that "considerations of administrative expertise relevant to Section 3 are not equally applicable to the effectuation of the purpose of Section 2." (p. 322), in view of the strong safety policy of that Act. See also *Baltimore and Ohio R.R. Co. v. Jackson* 353 U.S. 325.

There is probably no legislation in which the Congressional objective of protecting the health and safety of the public is so strongly evident as in the Atomic Energy Act of 1954, or one in which the administering agency is so frequently reminded of that objective. This may well have been necessary, among other reasons, because the Commission promotes the industry it is charged with regulating for security and safety purposes. In this potentially dan-

gerous conflict of interest, it is imperative that doubts as to interpretation, if any, be resolved in favor of safety.

Petitioners contend that the court should accept the statutory construction consistently made by the agency charged with administering the Act. As shown below (pp. 59-62; 78-80) the Commission has not been consistent in its interpretations or its actions, to say the least, but even if it had hitherto consistently taken the position it has taken in this case, that would not be persuasive or controlling, because "consistent error is still error." *Phillips Petroleum Co. v. Wisconsin* 347 U.S. 672, 678 n. It is still the obligation of the court to reconcile administrative interpretation with the broad policies laid down by Congress. *United States v. E. I. DuPont de Nemours & Co. et al.* 353 U.S. 586, 590; *Automatic Canteen Co. v. Federal Trade Commission* 346 U.S. 61, 74.

D. Congress has not acquiesced in the Commission's interpretation and application of the Act and its Regulations in this case.

Petitioners contend that the history of the relationship between the Commission and the Joint Committee, with full explanation of the Commission's construction permit procedure, support the validity of the Commission's construction permit regulations.

The significant fact is that the Commission never discussed with the Joint Committee its present interpretation of these regulations, which appeared for the first time in its decision in this case. While on several occasions representatives of the Commission discussed the construction permit procedure in general terms with the Joint Committee, they did not present any interpretation of specific regulations. They did not assert that the Commission had no obligation to make an initial determination, at the time

of issuing a construction permit, that it believed the proposed reactor could be operated safely. Certainly they gave no intimation that the regulations on construction permits provide only, as the Commission declared in its Final Decision herein, that the *construction* of the reactor will not endanger the health and safety of the public (R. 643, 644).

The record is quite to the contrary. Petitioners rely heavily on the general statement made by Mr. H. L. Price, then Director of the Division of Civilian Application, to the Joint Committee on February 8, 1956, *before* the Commission's Regulations were promulgated, and *before* any construction permit for power reactors had been issued. (Brief, No. 454, pp. 63, 64; Brief, No. 315, p. 50; R. 651-655). However, on June 13, 1956, *after* its regulations on the licensing of reactors was in effect, and *after* 3 construction permits for power reactors had in fact been granted (*infra*, p. 102), Mr. Price testified as follows, in response to a question as to what a private company must do to obtain a *license to build* an atomic power plant:"²⁹

"... If the project is entirely privately financed, the Company could file an application for a license. They have to make a showing of financial responsibility, technical competence of the people that are going to be in charge, and then have to make a very detailed showing of the ways in which they will protect their employees and the public against the hazards of radiation that have been talked about. It is this evaluation from a hazard standpoint that is the most important and the detailed. That is the big part in licensing procedures." (Emphasis added)

²⁹Hearings before Subcommittees of the House Committee on Appropriations on Second Supplemental Appropriation Bill, 1957, 84th Cong. 2nd Session, Part 2, p. 70.

As shown below (p. 78), that was in fact the procedure followed in the scores of construction permits issued for power, as well as research and development reactors, except that in the instant case.

Furthermore, the Commission did not keep the Joint Committee fully informed about its application of the construction permit procedure. The first time the Commission gave the Joint Committee, on its request, a *detailed* statement of its application of that procedure was *after* the PRDC permit was issued, in a document dated October 9, 1956. *A Study of AEC Procedures, etc. supra*, pp. 100-108. The Commission then stated (*id.* p. 107) that, after various preliminary steps are taken,

"The Commission staff reviews these reports as they are submitted, holds informal meetings with the applicant, discusses the safety aspects of the reactor with its advisers (ACRS), considers the progress of the developmental programs which are being carried out by the applicant, and finally arrives at a point when it believes that *there is reasonable assurance* that the unresolved safety problems can be resolved in a way that will make it possible for the applicant *to operate the proposed reactor at the proposed site without undue risk to the health, safety, and property of the public*. At this juncture, the Commission may issue a conditional construction permit." (Emphasis added)

That explanation is inconsistent with the position that the Petitioners now take on the point at issue. The statement makes it clear that the Commission interpreted its regulation to require a finding, at the time the construction permit is issued, that the proposed reactor, not merely the general type, could be operated at the proposed site, without undue risk to the health and safety of the public.

Safety during the construction period, or for the purposes of a provisional construction permit, was not even mentioned.

This, then, was the understanding of the Joint Committee at the time as to the Commission's practice on this point. It is a far cry from the impression the Petitioners are trying to create. Subsequently, the Commission instituted measures to change the governing criteria in its regulations, but the effort was abandoned (*supra*, pp. 53-56).

Furthermore, as indicated above (p. 5 n.), Senator Anderson, Chairman of the Joint Committee at the time, and Representative Hollifield, Chairman of the Committee now, were highly critical of the method followed in granting the permit. Congressional criticism of the failure of the Commission to keep the Joint Committee informed has been caustic and frequent.³¹

On one occasion there appeared to be a deliberate effort at concealment. The adverse report of the Advisory Committee on Reactor Safeguards on the PRDC application was sent to the General Manager of the Commission on June 6, 1956 (R. 587). On June 25, 1956, the Commission members appeared before a subcommittee of the House Committee on Appropriations,³² and discussed, in response to questions from Representative Cannon, Chairman of that Committee, the problems delaying the PRDC project. No mention was made of the adverse safety report. On

³¹ Section 202 of the AEC Act requires the Commission to keep the Joint Committee "fully and currently informed with respect to all of the Commission's activities." However, the Commission has been repeatedly criticized for failing to comply with this statutory obligation. *See* Hearings before Committee on Interstate and Foreign Commerce, 86th Cong., 1st Session, pp. 509-531, 606, 933-934.

³² Hearings before Subcommittees of House Committee on Appropriations, 84th Cong., 2nd Session, Second Supplemental Appropriation Bill, 1957, Part 2, pp. 219-215; 238-240.

June 29, Commissioner Murray revealed to the Appropriations Committee that the report had been issued, and a heated colloquy ensued between Cannon and Lewis Strauss, Chairman of the Commission, concerning the failure to give the information earlier. During this exchange Commissioner Murray stated:

"All of these designs are submitted, before approval, to our Reactor Safeguard Committee and a permit for construction and go ahead is not given until the committee approves."

Not until July 13, 1956, and only after insistent requests, did the Commission send a copy of the report to the Joint Committee; and then only with qualifications as to use.³³

Congress disapproved of the only aspect of the PRDC proceeding that came before it for consideration. The Commission had agreed with PRDC to spend over \$4 million on research work for the latter's reactor (*infra*, p. 17). When the Commission went to Congress for an appropriation to carry out this commitment, a substantial conflict developed, both in the Joint Committee and on the floor of Congress. The money requested for this purpose was denied, and specific reference was made to the objections which had been raised regarding the issuance of the permit in this litigation.³⁴

Later, on July 14, 1958, Senator Anderson discussed the PRDC permit on the floor of the Senate, after a chemical experiment for the PRDC reactor injured several children. He stressed the fact that he had opposed issuance of the original PRDC permit against the advice of the Advisory

³³ A Study of AEC Procedures; etc., *supra*, pp. 117-122.

³⁴ Hearings before the Senate Committee on Appropriations, Atomic Energy Appropriation Bill, H.R. 9379, 85th Cong., 1st Session, August 21, 1957, p. 10; Conference Report on H.R. 9379, August 23, 1957.

Committee on Reactor Safeguards, and without the necessary testing beforehand. Part of Senator Anderson's comments are quoted in the margin.³⁵

The foregoing record shows quite clearly that Congress did not acquiesce in the interpretation and application of the Commission's construction permit procedure as revealed in the present case.

Petitioners argue, finally, that the Joint Committee studied the permit procedure, but did not recommend any changes in the procedure regarding safety findings, in *A Study of AEC Procedures*, etc., *supra*. As already indicated, that study revealed that the Commission then expressed a different view of the matter than it expressed in the final PRDC decision, and that, in fact, members of the Joint Committee were highly critical of the Commission's procedure in the PRDC case. In any event, the study was a staff report. Representative Durham, Chairman of the Joint Committee at the time the study was published, stated in the foreword that it was not a committee report, contained no specific legislative recommendations, and the opinions expressed therein did not neces-

³⁵ "It was the position of those of us who opposed the issuance of that permit that an atomic reactor should not be built until a Reactor Safeguards Committee, consisting of able and conscientious men, should say it was safe; and that if additional experimentation were necessary before the permit was granted, such experimentation should be made. Such experimentation and emphasis on safety has been the practice in connection with the other atomic reactors. Only in connection with this private reactor were the operators given permission to go ahead against the advice of the Reactor Safeguards Committee, consisting of men of very fine character and high standing."

"We know about pressurized water reactors. We know how to build certain types of them. When we enter a new field we should be sure that we have done all the necessary testing before construction begins. That was the ground upon which the Governor of Michigan intervened - I think wisely so. That was the point at which the labor unions entered the picture. They felt that before entering this field we should be sure that the process will work. I think they are on very sound ground."

194 Cong. Rec. 13593-13594. (July 14, 1958)

sarily represent the views of the Committee or its individual members (*id.* p. IV).

In short, there has not been any Congressional acquiescence in the Commission's interpretation of its regulations, particularly Regulation 50.35, in the PRDC case. The foregoing history of the relations between the Commission and Congress shows (1) prior to the decision in this case, Congress was never informed of the Commission's interpretation of the regulations in issue; (2) both before and after the issuance of the original permit, the Commission informed Congress that its practice was to make a careful evaluation of, and an affirmative finding on, safety of operation of a proposed reactor before issuing a construction permit (*supra*, pp. 59-60). (3) members of the Joint Committee were highly critical of the issuance of the PRDC permit without adequate safety findings (*supra*, p. 5); (4) because the Commission issued the original PRDC permit without a hearing, and despite an adverse safety report from its Advisory Committee on Reactor Safeguards, and in view of the Commission's execution of a contract to give PRDC research and development assistance while the legality of its permit was being litigated, Congress adopted what it deemed appropriate amendments to the Act to regulate those aspects of Commission activity; (*supra*, pp. 15-17); (6) the Joint Committee expressed disapproval of an amendment to Regulation 50.35 which would have incorporated the rationale of the PRDC decision, and that amendment has not been promulgated (*supra*, pp. 53-56); and (7) Congress was highly critical of the failure of the Commission to keep the Joint Committee and other Congressional committees fully informed (*supra*, p. 61). In the light of that history, any contention that Congress acquiesced in the Commission's interpretations of its powers under the Act is utterly groundless.

E. The Commission failed to make the necessary findings on safety of operation of the PRBC reactor

1. The Commission's findings on safety do not conform to the requirements of the Act.

Petitioners do not contend that the Commission found that the PRBC reactor will operate with adequate protection for the health and safety of the public.

The Petitioners contend, however, that the Commission's action does conform to the 2-step licensing procedure provided by the Act, and that the Commission's finding does comply with the statutory requirements for the first step. Their contention is that the Act does not, in fact, impose any safety requirement for the first step, namely the issuance of the construction permit, but does so only for the second step, when permission to operate is granted. As already shown above, this contention misconstrues the nature of the statutory 2-step procedure.

The basic safety finding must be made at the first step, and the second step consists, in substance, of determining whether the conditions of the construction permit have been complied with.

As the legislative history reveals, the two-step licensing procedure established by the Act is a method designed to effectuate the overriding interest of Congress in protecting public health and safety, while at the same time enabling investors to undertake to build these very costly facilities with assurance of a license to operate them if they construct the facilities in accordance with the conditions of the construction permit. Without such assurance, it would be utterly irrational to expect such substantial investments to be made. This objective was most clearly expressed in the report by the Joint Committee on the bill that became the Act when it stated that "Section 185 . . . requires the issuance of a license if the construction is carried out in

accordance with the terms of the construction permit." (*supra*, p. 40)

There is nothing in the court's decision which would interfere with that 2-step procedure. The fact that the Commission must make a finding of safety of operations, at the time the construction permit is issued, does not mean that this is the "definitive and final" determination of safety. The Commission must still determine, after completion of construction, whether or not the conditions of the construction permit have been carried out. A determination that adequate protection has been provided for health and safety of the public cannot be definitive and final until construction has been completed in accordance with the terms of the construction permit, and the Commission has so found. The court below said nothing to the contrary.

As shown by the statements made by Senators Humphrey and Jackson, (*supra*, pp. 41-42) without dissent from any Senator, Congress was concerned lest there be tremendous pressure to obtain licenses generated by those who had spent many millions of dollars on construction, were there not previous assurance that licenses would be granted if the condition of the construction permit were met. In this case, for example, reasonable men cannot blind themselves to the fact that once PRDC had spent the \$80 million or more that will be required to complete construction of this project, the pressure on the Commission to resolve all doubts on safety in favor of PRDC may well be irresistible. The statement of the Government that "the Commission is not concerned with the financial investment made by the applicant" (Brief, No. 454, p. 53), when that investment is \$80 million, is naive, to put it mildly. It was to avoid such a situation and to make certain that the safety

question was searchingly examined by the Commission at the outset that the 2-step procedure as set forth in Section 185 was devised. The Federal Communications Commission has recognized the danger that Congress sought to avoid in matters of this kind, *W.SAU, Inc. and WJIV-TV*, 10 R.R. 402.

The Commission has already demonstrated the validity of this Congressional concern. On August 3, 1957 (before the taking of testimony in this case had been completed), the chairman of the Commission sent a letter to Representative Sterling A. Cole, former chairman of the Joint Committee, expressing irritation over the Congressional attitude toward the contract between the Commission and PRDC for governmental assistance on the PRDC reactor, (*supra*, p. 62). The letter states, in part:

"In the PRDC contract, the Commission, in consideration of expenditures by PRDC and its affiliates, estimated at about \$58 million, undertook to contribute up to 4.2 million dollars to the cost of certain specific research and development needed for the reactor project. *PRDC and its affiliates had already spent very substantial sums in reliance on the Commission's undertaking to provide this assistance.* We believe that under the circumstances PRDC in justice is entitled to assurance that the appropriations necessary for the Commission's undertakings are authorized." (Daily Congressional Record, A6319-5325, August 5, 1957; Tr. 3906, 3907.) (Emphasis added)

2. The Commission's findings on safety do not conform to the requirements of its regulations.

The original permit to PRDC did not contain any finding that the proposed reactor could operate safely. The Com-

mission did consider the problems relating to the safety of operation, but made only the following statement in the permit:

"(2) On the basis of information presently available, the Commission believes that the problems relating to the safety of operation of the PRDC reactor will prove to be of a kind that can be satisfactorily resolved within a reasonable time. There is some doubt whether they can be resolved in time to meet the schedule proposed by PRDC in its application and it may turn out that further investigations beyond the program of investigation outlined by PRDC in its application will be needed." (R. 518).

¶ The Commission does not contend that it did make the requisite finding on safety at that time. Its answer to the Respondent's objection on this score, given in the Final Decision was, "Even if the Commission had erred in issuing the original construction permit, such error would not be prejudicial to the Intervenor, because they were afforded every opportunity on the record to develop the safety and financial issues." (R. 663).

Apparently it is not a matter of importance in the administration of the Act that a construction permit be illegally issued, and the applicant be authorized to spend many millions of dollars over a period of almost 3 years before an attempt at correction is made, because, after all, the objectors were given a hearing after the permit was issued!

¶ Petitioners have made no attempt to argue that the original construction permit was properly issued. Indeed, almost at the very outset of these proceedings, but after it had been granted the construction permit, PRDC inferred its belief (1) that a finding of safety of operation

was required to support the construction permit, and (2) it could not sustain the burden of establishing such safety. Those inferences can fairly be drawn from the request for an exemption from Regulation 50.35 which PRDC filed on December 10, 1956, (R. 396-397). It sought exemption from the requirement of that Regulation that the Commission "be satisfied . . . it has information sufficient to provide reasonable assurance that a facility of the general type proposed can be *operated* at the proposed location without undue risk to the health and safety of the public."

In its Order permitting Respondents here to intervene to challenge the validity of the permit, the Commission refused to include the issues as stated by Respondents, but limited and specified the issues to be heard. The basic specifications were as follows (R. 578):

"A. 1. Whether there is information sufficient to provide reasonable assurance that a utilization facility of the general type proposed in the application can be constructed and operated at the location proposed therein without undue risk to the health and safety of the public.

"~~A. 2.~~ Whether there is reasonable assurance that technical information omitted from and required to complete the application will be supplied."

Both Respondents and PRDC requested that these issues be modified, but the Commission refused to allow any changes (Tr. 6399, 6407, 6416, 6426, 6440):

Issue A, as specified, uses verbatim the words of Regulation 50.35 on the safety finding required, including safety of operation at the proposed site. Furthermore, the manner in which the issues are stated shows the Commission's view of the order of priority. The *first* issue to be determined, set forth in A.1, is whether there ~~is~~ information

sufficient to provide reasonable assurance of safety. The *second* issue is whether necessary technical information omitted from the application will be supplied. This is the order of priority stated in the regulation, namely, if there is the necessary assurance of safety of operation at the time action is to be taken on the construction permit, the Commission may issue the permit if it believes the omitted information will be supplied.

The statement of the issues specified by the Commission established the framework of this proceeding. They also determined the nature of the findings that the Commission would have to make. The Commission declared in its order that "the applicant for the permit must demonstrate at the hearing that it is able to satisfy those requirements of law and the Commission's regulations which are in controversy" (R. 582). What those requirements were was stated in the specified issues.

During the hearing a substantial part of the technical evidence offered by PRDC related to safety of operation of its proposed reactor (*supra*). Neither PRDC nor the AEC staff raised any question as to the necessity for offering such evidence.

In its Initial Decision, the Commission made the following basic finding on safety:

"22. The Commission finds reasonable assurance in the record that a utilization facility of the general type proposed in the PRDC application and amendments thereto can be constructed and will be able to be operated at the location proposed without undue risk to the health and safety of the public." (R. 615)

This finding is substantially in accord with the language of Regulation 50.35. However, in its Final Decision the Commission deliberately modified this finding:

"22. The Commission finds reasonable assurance in the record, *for the purposes of this provisional construction permit*, that a utilization facility of the general type proposed in the PRDC application and amendments thereto can be constructed and operated at the location without undue risk to the health and safety of the public." (R. 708) (Emphasis added).

The new words "for the purposes of this construction permit" are not mere surplusage, as Petitioners strive hard to establish. They are highly significant. They were used after the Commission had an opportunity to re-examine its Initial Decision, and are used only in this and 2 other numbered findings (R. 710, 711; Findings Nos. 30 and 34). If these words were intended merely to describe the fact that the findings are made in a provisional construction permit, there was no reason to limit their use so narrowly, since *all* the findings were made in a provisional construction permit. The use of this qualification makes it clear that the Commission was not making a present finding with respect to safety of operation.

But Regulation 50.35 permits no qualification of a finding of safety limited to the purposes of a provisional construction permit. The Act contains no such qualification.

The conclusion that the Commission was seeking, in its Final Decision, to throw off restrictions on its freedom of action, which it recognized in its Initial Decision, is shown in its discussion of Regulation 50.40, relating to common standards. (*supra*, pp. 11-12; 46-47).² In its Initial Decision, the Commission stated that Regulation 50.40 is its basic statement of the standards under which the Commission will issue licenses, *but* does not otherwise comment on or interpret it (R. 928). In its Final Decision, the Commission concedes that in this regulation "license" covers "construction permit" (R. 643). However, although the in-

formation required by that Regulation specifically relates to operation of the proposed reactor, the Commission asserts the regulation relates only to construction when the matter involved is a construction permit for a developmental reactor (R. 644). Not only is there absolutely no language in that regulation to support such an interpretation, but this is the first time the Commission made it.³⁶

Yet despite this insistence that its findings need relate only to construction safety, the Commission seems to recognize that some finding of operating safety is required. It declares in its Final Decision that "The degree of reasonable assurance with respect to safety that satisfies us in this case for purposes of the *provisional* construction permit would not be the same as we would require in considering the issuance of the operating license." (Emphasis in original) (R. 679). This statement, which refers to Regulation 50.35, makes it clear, first, that the Commission does place critical significance on the phrase "for the purposes of the *provisional* construction permit." Secondly, it indicates there must be reasonable assurance as to safety of operation at the time the construction permit is issued, otherwise the asserted difference in the "degree" of reasonable assurance would be meaningless. Thus the Commission has nullified so much of its argument as seeks to establish that a finding of safety of operation is not required when the construction permit is issued. The fatal difficulty with its rationalization, however, is that it so dilutes the standard and renders the finding so vague and uncertain, particularly when compared to the earlier find-

³⁶ The Commission also asserts that a construction permit is not equivalent to a license (R. 644). This is in flat contradiction to the statement of Senator Hickenlooper, manager of the bill in the Senate, declaring that "A license and a construction permit are equivalent. They are the same thing, and one cannot operate until the other is granted." (*supra*, p. 42).

ing in the Initial Decision, that it cannot be deemed to be a finding of safety of operation.

Examples of the Commission's lack of conviction can be multiplied. In its Initial Decision, the Commission made the following finding:

"30. *Data presently available* indicate that a reactor of the general type described in the application can be so designed that no credible accident in the course of its operation is likely to result in the release of *significant quantities of fission products into the atmosphere*; this conclusion *has not been demonstrated sufficiently at this time to justify issuance of an operating license.*" (R. 617). (Emphasis added).

This is certainly not a finding which leads to reasonable assurance of operating safety. Yet the Commission retreated even from this position in its Final Decision. The foregoing finding was then modified as follows:

"30. *For the purposes of a provisional construction permit*, there is reasonable assurance that a reactor of the general type described in the Application can be so designed that no credible accident in the course of its operation is likely to result in the release of significant quantities of fission products into the atmosphere." (R. 710) (Emphasis added).

The Commission was apparently unwilling to derive any conclusions on credible accidents from the "data presently available." And the statement that "this conclusion has not been demonstrated," etc., becomes "for the purposes of a provisional construction permit."

Repeatedly the Commission failed to find reasonable assurance on the basis of data available to it at the time

of issuing the permit. For example, its 18th finding states (R. 706):

"a. It has not been positively established that a fast breeder reactor of the general type and power level proposed by Applicant can be operated without a credible possibility of releasing significant quantities of fission products to the environment;

"b. There is reasonable assurance that theoretical and experimental investigations which have been undertaken, together with operating experience on one or more of the EBR-I, EBR-II and Dounreay³⁷ reactors, will establish definitively, prior to the scheduled completion date of the PRDC reactor, whether or not the reactor proposed by Applicant can be so operated;³⁸

"c. There is reasonable assurance that evidence will establish that the reactor proposed by Applicant can be so operated."

³⁷ The construction of EBR-II has not yet been completed, let alone operated. On March 1, 1961, the Commission issued an official report stating that, as of the end of February 1961, installation of equipment in this project approximately 65% completed. (*Summary Status of the ANL Fast Breeder Reactor Program Pertinent to the PRDC Case.*) John A. McCone, when Chairman of the Commission, recently expressed the opinion that it was "bad timing" to be building the PRDC reactor at the same time as the EBR-II, because the former "cannot benefit by the improvements that we are going to prove out in the EBR-II." (Hearings, on Development, Growth and State of Atomic Energy Industry, Joint Committee on Atomic Energy, 86th Congress, 1st Session, February 18, 1959, p. 98.) Dounreay is operating at a low power level and a number of unique fast reactor problems have not yet been solved. *Symposium on the Dounreay Fast Reactor*, British Nuclear Energy Conference, London, December 7, 1960, p. 85.

³⁸ At the time of that finding the scheduled completion date of the PRDC reactor was December 15, 1960, (*supra*, p. 5). On November 18, 1960, the Commission extended the completion date (*supra*, p. 9) without determining that operating experience on EBR-I, EBR-II, or Dounreay reactors had established that the PRDC reactor could be operated without a credible possibility of releasing significant quantities of fission products to the environment.

Assurance that investigations under way "will establish definitively . . . whether or not the reactor proposed by Applicant" . . . "can be operated without a credible possibility of releasing significant quantities of fission products to the environment" obviously implies that the evidence does not now establish, or give reasonable assurance, that the reactor can be so operated.

The Commission's findings on the safety of the site reveal similar attenuation. Regulation 50.35 requires a finding of safety with respect to operation of the reactor *at the proposed site*. In its Initial Decision, the Commission found, (R. 617, 618):

"32. The proposed site is generally suitable for a reactor of the type and size described in the Application, if the reactor is otherwise shown to be capable of operation without undue hazard, including demonstrations of stability and adequate containment. Adequate investigations are under way to establish the characteristics of the chosen site, including all relevant aspects, and the record shows that to this point the site is satisfactory from the standpoint of protection of the public from undue hazard." (Emphasis added)

Although this is not an adequate finding, it constitutes a recognition that a determination of suitability of site must be made in relation to safety of operation of the reactor.

In its Final Decision, however, the Commission omits the portion of this finding to the effect that the site is satisfactory "to this point" (R. 710, 711):

"32. There is reasonable assurance that the proposed site is generally suitable for a reactor of the type and size described in the Application, if the reactor is otherwise shown to be capable of operation without

undue risk to the public health and safety, including demonstrations of stability and adequate containment. Adequate investigations are under way to establish the characteristics of the proposed site, including all relevant aspects with respect thereto." (Emphasis added)

The Commission would get no nearer to a finding on safety of operation at the proposed site than to say that "*safe operation of the reactor will be as likely in that location as in any other.*" (R. 678). These are not findings that the reactor can operate safely at the proposed site.

There is another equally serious defect in this site finding. So far as the conditions of the site itself are concerned, the Commission says only that "Adequate investigations are under way to establish the characteristics of the proposed site, including all relevant aspects with respect thereto." The investigations "under way" must determine (1) what the characteristics are, and (2), how these characteristics affect the suitability of the site. For example, in case of a nuclear accident, "the consequences would depend on the meteorological conditions at the moment as well as upon the nature of the fission products released." (R. 678). The Commission's Final Decision states no reason for lack of the necessary information at the time the PRDC application was considered and acted upon.

Petitioners rationalize their interpretations of the Act and the Commission's regulations on the ground that "there are often uncertainties and technological problems that can be resolved only during the course of construction." (Brief, No. 454, pp. 45-48; No. 315, pp. 30-34). Petitioners do not, however, state any reason to justify the lack of necessary information on site characteristics, such as its meteorology, geology, hydrology, etc. Assuming,

arguendo, that the rationale of Petitioners regarding demonstration of *reactor* characteristics is valid, that rationale has no application to *environmental* information. Applicants do not have, and of course do not claim, the power to affect or change the meteorological characteristics of the site, and no improvements in technology can alter that fact. There is even less excuse, accordingly, for speculation as to site characteristics, and for lack of a present finding of site suitability, than in the case of reactor characteristics.

Once a reactor is built, the site selection is irrevocable. The only aspect of the project that would be subject to change is the reactor itself. In effect, therefore, Commission approval of a site for a construction permit is final. The Commission candidly recognized this in its proposed amendment to Regulation 50.35 (*infra*, pp. 100-101), when it proposed to provide, in substance, that the finding of site safety at the time of issuance of the construction permit would be final, inasmuch as its proposed subsequent proceedings do not include reference to site considerations.

The issuance of a construction permit by the Commission in violation of its own regulations, adopted pursuant to statutory authority, is a violation of the Act. Regulations validly prescribed by a government agency are binding upon the agency as well as the citizen, *Accardi v. Shaughnessy* 347 U.S. 260, and this principle holds even when the administrative action under review is discretionary in nature, *Vitarelli v. Seaton* 359 U.S. 535; *Service v. Dulles* 354 U.S. 363. Cf. *Bridges v. Wixon* 326 U.S. 135, ²³¹⁻²³³ *Chapman v. Sheridan Wyoming Co.* 338 U.S. 621, 629.

Consequently, an additional reason for upholding the decision of the court below is that the Commission has failed to make the safety findings required by its Regulations.

3. The Commission failed to answer its own specifications of the safety issue in this case:

As shown above, the Commission framed the issues in this case itself, and rejected efforts of the Petitioners to modify them. The safety issue as drawn by the Commission was not limited to the purpose of a provisional construction permit. The main thrust of the protest related to what might happen during operation. (R: 524; Brief, No. 315, p. 11). The stated issues gave no indication that the Commission was trying to avoid, or would not deal with, what the parties considered the paramount questions.

The Commission did not answer the safety question which it had formulated, namely was there reasonable assurance of safety of operation at the proposed location, but limited its answer to the construction period. Since the Commission initially considered the questions it framed as being basic to a determination of the validity of the permit, its decision is fatally defective because it failed to answer those questions. *Boudin v. Dulles* 235 F. 2d 532; *Burrell v. Martin* 232 F. 2d 33.

4. The Commission's action in this case is inconsistent with its practice in all other similar cases.

Petitioners make *undocumented* assertions that the Commission's action in this case is the same as in all other cases involving construction permits for developmental power reactors. These assertions are simply contrary to fact.

The Commission issued three construction permits for developmental power reactors prior to issuing the original PRDC construction permit,³⁹ and five thereafter.⁴⁰

³⁹ *Consolidated Edison Co.* (CPR-1; 21 F.R. 3084); *Commonwealth Edison Co.* (CPR-2; 21 F.R. 3085); *General Electric Co.* (CPR-3; 21 F.R. 3395.)

⁴⁰ *Yankee Atomic Electric Co.* (CPR-5; 22 F.R. 7188, 9237); *Saxton*

In all of them, the Commission made safety findings in the words of Regulation 50.35, stating that the applicants had submitted information sufficient to provide reasonable assurance that a utilization facility of the general type proposed could be constructed and operated at the proposed location without undue risk to the health and safety of the public. None of them contained any qualification that the finding was made "for the purposes of a provisional construction permit." In all of them, the Commission had, in fact, initially found that the specific reactor applied for could operate safely.

In addition, up to the time of the dismissal of the petitions for rehearing by the court below, the Commission had issued 58 construction permits for research and development reactors. In those, the Commission either made the same safety finding as in the 8 power reactor permits mentioned above, or explicitly found that the reactor proposed could operate safely. Likewise, none of them contained any qualification "for the purposes of a provisional construction permit".

These permits show that the Commission has generally "pursued a course impossible to reconcile with present contentions of the Government" (*U.S. v. Gerlach Live Stock Co.* 339 U.S. 725, 739).

In the light of that record of performance, there is no basis whatever for the contention of the Petitioners that the interpretation for which Respondents contend would drastically alter the Commission's actual procedures, or would interfere with development of the atomic energy industry contrary to contemplation of the Act.

Nuclear Experimental Corp. (CPPR-6; 24 F.R. 9244; 25 F.R. 1471); *Caroline's Virginia Nuclear Power Associates, Inc.* (CPPR-7; 25 F.R. 522, 4206); *Northern States Power Co.* (CPPR-8; 25 F.R. 254, 4484); *Consumers Power Co.* (CPPR-9; 25 F.R. 1699, 5002.)

F. *The Commission's findings are, at best, ambiguous*

As shown above, Respondents believe it is clear that the Commission has failed to make the safety findings required by the Act and the Commission's regulations.

The court below, after carefully examining the findings, pointed out a number which fall short of indicating assurance with regard to safety of operation (R. 960-962). The court concluded that a finding of safety "for purposes of a provisional permit," and the predictions regarding the future course of scientific development, do not satisfy the requirements of the Act. (R. 961, 962):⁴ Other defective findings are cited *supra*, pp. 67-77.

On the other hand, the court pointed out a few "expressions which might seem to indicate a positive opinion regarding safety of operation." (R. 963).

One of the outstanding contradictions in the Final Decision, and one of its basic defects, is its treatment of the question of whether the finding of safety must relate to the specific reactor for which the permit is sought. On the one hand, the Commission asserts that, for the purposes of a provisional construction permit, it is enough "for the satisfaction of the requirements of the statute and the regulations that there be reasonable assurance that *the reactor* can be constructed and *operated* without undue risk to the health and safety of the public" (R. 676, 677) (Emphasis added). On the other hand, its principal finding on safety applies only to the general type of reactor proposed (R. 708), and the Commission insists that its finding on safety need relate only to the construction period (R. 643, 644).

The result, in the opinion of the court, is that the Commission's findings regarding safety of operation are ambiguous. In its view, the nature, size, and location of the project require that the findings be free from ambiguity, and that the Commission failed to make the basis of its

action reasonably clear; until that is ~~done~~, the court is not obliged to determine the validity of the Commission's decision. *Secretary of Agriculture v. United States*, 347 U.S. 645, 654; *Radio Station KFH Co. v. Federal Communications Commission*, 247 F. 2d 570, 572; *Pacific Far East Line, Inc. v. Federal Maritime Board*, 275 F. 2d 184, 187. (See also *Eastern Central Motor Carriers Association v. United States*, 321 U.S. 194, 211; *United States v. Chicago, Milwaukee, St. Paul Railroad Co.*, 294 U.S. 499, 510.)

The Government seeks to explain away what the court charitably called ambiguities by saying they involve "no more than the distinction, clearly drawn in the regulations" between the two types of findings for a construction permit for a *developmental reactor*, namely, (1) a *present* conclusion as to safety of the general type of reactor proposed, and (2) a *tentative* conclusion as to eventual demonstration of the safety of the final design, citing Regulations 50.35 and 50.40. (Brief, No. 454, pp. 69-70).

The obvious weaknesses of this explanation are (a) these regulations, as shown above, make no express or implied provision for developmental reactors as distinguished from other types; (b) the Commission failed to make a *present affirmative* finding of safety of operation as these Regulations require; (c) the regulations do not provide for issuance of a construction permit, without a finding of safety of operation, conditioned upon the outcome of the applicant's research and development program. Significantly, the Government does not refer to any provision of the Act or the regulations to support this dichotomy between present and tentative conclusions.

The answer of PRDC on this point simply misconstrues the opinion of the court below. It asserts that the court's determination of ambiguity stems from "the mistaken premise that a definitive finding of safety of the reactor as

initially designed is required for issuance of a provisional construction permit" (Brief, No. 315, p. 37). There is no language in the court's opinion which can reasonably be construed to mean what PRDC says it means. There is nothing in the court's opinion requiring a definitive determination with respect to a precise reactor design.

In sum, neither the Government nor PRDC adequately meet and counter the court's conclusion as to ambiguity of the Commission's findings. They make no attempt to rebut the principle enunciated by the court that ambiguity of the findings would require reversal of the Commission's decision.

II

THE HOLDING OF THE COURT BELOW THAT THE COMMISSION'S SAFETY FINDINGS ARE INSUFFICIENT IS NOT BASED ON THE FAILURE OF THE COMMISSION TO FIND "COMPELLING REASONS" FOR APPROVING LOCATION OF THE PRDC REACTOR NEAR A DENSELY POPULATED AREA.

The Petitioners misconstrue the opinion of the court below with regard to its holding regarding safety of the site of the reactor.

The Government argues that the statement of the court of appeals that the "Commission's safety findings are deficient in an additional respect" refers to the failure of the Commission to find that there were "compelling reasons" for locating the PRDC reactor near a densely populated area (Brief, No. 454, p. 75). The Government asserts that the error of the majority of that court lay in "requiring a special subordinate finding" of such reasons (ibid. p. 78).

PRDC, however, does not discover such a requirement. Its position is that this aspect of the opinion of the court below constitutes "an alternative ground of decision" (Brief, No. 315, pp. 23, 55, 56).

After stating that the Commission's safety findings are

deficient in an *additional* respect, having previously discussed the findings concerning the reactor itself, the court points out (R. 964) that the record shows (1) a report by the Commission to the Joint Committee on the possible injuries to persons and property if certain hypothetical major accidents occurred (R. 349-363); (2) undisputed testimony before the Commission that there is a possibility of a major disaster even though it has a low probability; (3) the Commission statement that "the question of safety obviously cannot be considered without regard to proposed location" (R. 677); and (4) the Commission finding that more than 2 million people live within a radius of 30 miles from the site (R. 707).⁴¹

Nevertheless, as the court pointed out (R. 964, 965), the Commission discussed physical characteristics of the site, including weather, hydrology and geology, and concluded:

"Although the data of these types are not yet complete or conclusive, the record gives reasonable assurance that the *safe operation of the reactor will be as likely in that location as in any other location.*" (R. 678) (Emphasis added).

Neither this finding, nor any other finding or discussion by the Commission (R. 677-678, 706-708), relates the site problem to population density. Incidentally, the quoted finding definitely relates to the safety of *operation*, of the PRDC reactor, and is not limited to the "purposes of a provisional construction permit" for a general type of reactor:

⁴¹ Assertions by Petitioners that the Commission's site findings are uncontested is completely unwarranted. Respondents not only took exception to site findings in the Initial Decision (*supra*, p. 40) to which the Commission sought to reply in its Final Decision (R. 677-679; 706-708), but one of the basic issues presented to the court below was that the Commission failed to make proper findings with respect to safety of the reactor at the proposed site (R. 951-952).

The crucial significance of this finding is that it treats the site problem at this location no differently than it would if the reactor were to be operated at some remote location. But, as the court points out, the Commission simultaneously takes the position, quite inconsistently, that if the melt-down investigation, which goes to the heart of the safety question, proves inconclusive, it will be necessary to consider the question of need for a prototype at a remote location (R. 965, footnote: 705-706).

It was in the light of the foregoing considerations, in addition to the deficiency of the safety findings which the court discussed in the earlier part of its opinion, that the court held the findings as to site safety "clearly insufficient." This is the only fair reading of the court's opinion on this point. The court did not say the finding was insufficient because it lacked a statement of "compelling reasons" for locating the reactor at the site involved.

The Government concedes the crucial importance of the population question. Its brief states:

"It is obvious, of course, that when all other conditions are the same, a power reactor located near a city creates a greater risk of harm than the identical plant located in the wilderness." (Brief, No. 454, p. 81).⁴²

This is flatly inconsistent with the finding of the Commission quoted above (*supra*, p. 83). The Commission's opinion makes no such admission. The Government argues, however, that there are "offsetting advantages" which justify the Commission's approval of the reactor at the location selected. It admits that the Commission "did not specifically discuss these offsetting advantages." It asserts, however, "they were the implicit framework within

⁴² The reference to "wilderness" is completely factitious. The Respondents did not propose placing the reactor in a wilderness.

which its decision was made," and then proceeds to enumerate a list of such advantages (Brief, No. 454; pp. 81-83).

It is apparent that these "offsetting advantages" are tantamount to the "compelling reasons" which the Government claims the court below required. In short, the Government in fact concedes the principle which it is ostensibly attacking. If such a requirement indeed obtains, the fatal flaw in the argument is that the Commission's Final Decision does not support this list, or any other list, of "offsetting advantages" in placing this reactor near a densely populated area.

The Government concludes this part of its argument with the statement that "We do not overlook the fact that although these considerations may be reasons for licensing a reactor in a populated area, *the proximity of the population demands a higher degree of safety*. The Commission acknowledges this and took it into account in the findings" (Brief, No. 454, p. 83) (Emphasis added).

The Commission not only did not take population density into account, but actually rejected this concept.⁴³ In its Initial Decision, the Commission found (R. 614, No. 21):

"A definitive evaluation of the suitability of the proposed site cannot be made at the present time. *In view of the population density around the site its suit-*

⁴³ PRDC, however, sought protection against this contingency of catastrophe. One of the conditions stated in its Application was that it be assured of its ability to obtain adequate liability insurance to cover operation of the reactor (R. 386). Walker Cisler, president of PRDC, testified, prior to the issuance of the construction permit, that the private insurance industry could not, and would not, assume the risk, because despite all their care "The danger of catastrophe still exists." He proposed that the Federal Government provide catastrophe liability protection *without an upper limit*. (Hearings before Joint Committee on Atomic Energy on Governmental Indemnity for Private Licenses, etc., 84th Cong., 2nd Session, May 16, 1956), pp. 126-127.

ability for the proposed reactor depends upon the inherent safety of the reactor and a demonstration that no credible accident can release significant quantities of fission products into the atmosphere. If the foregoing are established, and there is reasonable assurance they can be, it is probable that the site will prove suitable for the proposed reactor." (Emphasis added).

This is a very guarded statement which makes population density the prime environmental consideration, and relates suitability of the site to the inherent safety of the proposed reactor.

In its Final Decision, however, the Commission changed that finding as follows (R. 707, No. 21):

"A definitive evaluation of the suitability of the proposed reactor depends upon the inherent safety of the reactor and a demonstration that no credible accident can release significant quantities of fission products into the atmosphere. If the foregoing are established, and there is reasonable assurance they can be, the site will prove suitable for the proposed reactor." (Emphasis added).

The changes were drastic. The population density criterion was dropped. Dependency of the suitability of the proposed site on the inherent safety of the reactor was dropped. Complete silence enveloped the question of a present evaluation of the suitability of the "proposed" site, on which construction of the reactor had been proceeding for almost 3 years at the time of the Final Decision.

The court did not, however, directly or by inference hold the findings on safety insufficient because of the lack

of a statement of "compelling reasons." This was made clear beyond any doubt by the court's statement that:

"We need not consider whether even the most compelling reasons for preferring this location could support a finding that the reactor could be operated at that location without undue risk or with adequate protection, to the health and safety of the public."

R. 965) (Emphasis added).

In other words, the absence of a statement of "compelling reasons" (or "offsetting advantages") was not considered by the court, because the most compelling reasons are not a substitute for sufficient safety findings concerning the reactor itself. In short, the general remarks of the court concerning Congressional intent on the matter of compelling reasons are dicta.⁴⁴

PRDC recognized the difficulty of asserting that the absence of a statement of "compelling reasons" was an alternative basis of the court's decision, in view of the fact that the court also stated that, in the light of the record, "We need not consider" that matter. The PRDC solution is to declare that the *latter* statement of the court is "dictum"! (Brief, No. 315, p. 18). By a piece of verbal legerdemain PRDC concludes that the effect of the "dictum" is to place a limitation on the power of the Commission to approve any large power reactor near a densely populated area. This is a fantastic distortion. The plain meaning of the court's statement is that it was not considering the matter of compelling reasons for locating a reactor at this site, because no such reasons, no matter

⁴⁴ It should be noted, nevertheless, that there was considerable Congressional concern over the location of reactors, as expressed, for example, by Representative Hinshaw, a member of the Joint Committee (*supra*, note p. 39).

how strong, could justify placing a reactor at this site if the reactor were not safe.

The Government, on the other hand, apparently concluded it could not satisfactorily explain away the court's statement that it was not considering the absence of compelling reasons, and therefore elected to ignore it.

If we assume, *arguendo*, that the lack of finding of "compelling reasons" is an alternative basis of decision of the court below, and the court was wrong, there would be no ground for reversing the decision since, as shown above, the court's primary basis of decision was proper. This is sufficient to uphold the decision. *Helvering v. Gowran*, 302 U.S. 238, 245; *Riley Investment Co. v. Commissioner of Internal Revenue*, 311 U.S. 55; *Brown v. Allen*, 344 U.S. 443, 459; *Frey & Son v. Cudahy Packing Co.*, 256 U.S. 208, 210.

A. *Proposed regulation on site selection.* At the time the construction permit for the PRDC reactor was issued, the Commission had no regulation establishing criteria for site selection, and has none in effect today. However, perhaps prodded by the decision of the court below, it has prepared and published a proposed regulation on Reactor Site Criteria, 10 CFR 100, 26 F.R. 1224, February 11, 1961. In its statement of considerations, the Commission declares:

"The basic objectives which it is believed can be achieved under the criteria set forth in the proposed guides, are:

"(a) Serious injury to individuals off-site should be avoided if an unlikely, but still credible, accident should occur. (b) Even if a more serious accident (not normally considered credible) should occur, the number of people killed should not be catastrophic. (c) The exposure of large numbers of people in terms of total

population dose should be low. The Commission intends to give further study to this problem in an effort to develop more specific guides on this subject. Meanwhile, in order to give recognition to this concept, the population center distances to very large cities may have to be greater than those suggested by these guides." (Emphasis added).

It is apparent from this statement that population density is proposed as a major consideration. The criteria are grouped in 3 classes (Section 100.10) namely, (a) population density, (b) physical characteristics of the site, and (c) characteristics of the proposed reactor (not general type). If the PRDC reactor had been proved out, its proximity to a big city would be acceptable under the proposed criteria. However, the proposed regulation states [Section 100.2 (b)]:

"For reactors which are novel in design, unproven as prototypes,¹⁵ and do not have adequate theoretical and experimental or pilot plant experience, these criteria will need to be applied more conservatively. This conservatism will result in more isolated sites—the degree of isolation required depending upon the lack of certainty as to the safe behavior of the reactor." (Emphasis added).

¹⁵The PRDC reactor clearly falls within the category of reactors described. The record in this case shows that EBR-I, the only fast breeder reactor that preceded the PRDC permit, built and operated at the remote testing grounds at Arco, Idaho, suffered an "excursion" and emitted radioactive fission products into the atmosphere. Mr. Cisler, president of PRDC emphasized, shortly before the issuance of the original construction permit, the experimental nature of his project. "The construction of the (PRDC) reactor may be quite properly viewed as the construction of a laboratory." Hearing before Subcommittee of Senate Interstate and Foreign Commerce Committee, 84th Cong., 2d Session, p. 144. April 18, 1956.

It thus appears that the Commission has belatedly recognized the importance of considering population density in selection of sites for power reactors.

Conclusion

The judgment of the Court of Appeals should be affirmed.

Respectfully submitted,

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APPENDIX A

STATUTES AND REGULATIONS INVOLVED

1. The Atomic Energy Act of 1954, 68 Stat. 919, as amended, 42 U.S.C. 2011, *et seq.*, provides, in part:

Sec. 2. Findings.—The Congress of the United States hereby makes the following findings concerning the development, use, and control of atomic energy: . . .

b. In permitting the property of the United States to be used by others, such use must be regulated in the national interest and in order to provide for the common defense and security and to protect the health and safety of the public . . .

d. The processing and utilization of source, byproduct, and special nuclear material must be regulated in the national interest and in order to provide for the common defense and security and to protect the health and safety of the public . . .

Sec. 3. Purpose.—It is the purpose of this Act to effectuate the policies set forth above by providing for— . . .

d. a program to encourage widespread participation in the development and utilization of atomic energy for peaceful purposes to the maximum extent consistent with the common defense and security and with the health and safety of the public . . .

Sec. 29. Advisory Committee on Reactor Safeguards.

—There is hereby established an Advisory Committee on Reactor Safeguards consisting of a maximum of fifteen members appointed by the Commission for terms of four years each. The Committee shall review safety studies and facility license applications referred to it and shall make reports thereon, shall advise the Commission with regard to the hazards of proposed or existing reactor facilities and the adequacy of proposed reactor safety standards, and shall perform such other duties as the Commission

may request. One member shall be designated by the Committee as its Chairman. The members of the Committee shall receive a per diem compensation for each day spent in meetings or conferences, or other work of the Committee, and all members shall receive their necessary traveling or other expenses while engaged in the work of the Committee. The provisions of section 163 shall be applicable to the Committee.

SEC. 104. MEDICAL THERAPY AND RESEARCH AND DEVELOPMENT.—

b. The Commission is authorized to issue licenses to persons applying therefor for utilization and production facilities involved in the conduct of research and development activities leading to the demonstration of the practical value of such facilities for industrial or commercial purposes. In issuing licenses under this subsection, the Commission shall impose the minimum amount of such regulations and terms of license as will permit the Commission to fulfill its obligations under this Act to promote the common defense and security and to protect the health and safety of the public and will be compatible with the regulations and terms of license which would apply in the event that a commercial license were later to be issued pursuant to section 103 for that type of facility. In issuing such licenses, priority shall be given to those activities which will, in the opinion of the Commission, lead to major advances in the application of atomic energy for industrial or commercial purposes.

"SEC. 161. GENERAL PROVISIONS.—In the performance of its functions the Commission is authorized to—

"i. prescribe such regulations or orders as it may deem necessary (1) to protect Restricted Data received by any person in connection with any activity authorized pursuant to this Act, (2) to guard against the loss or diversion of any special nuclear material acquired by any person pursuant to section 53 or pro-

duced by any person in connection with any activity authorized pursuant to this Act, and to prevent any use or disposition thereof which the Commission may determine to be inimical to the common defense and security, and (3) to govern any activity authorized pursuant to this Act, including standards and restrictions governing the design, location, and operation of facilities used in the conduct of such activity, in order to protect health and to minimize danger to life or property;

SEC. 182. LICENSE APPLICATIONS.—

a. Each application for a license hereunder shall be in writing and shall specifically state such information as the Commission, by rule or regulation, may determine to be necessary to decide such of the technical and financial qualifications of the applicant, the character of the applicant, the citizenship of the applicant, or any other qualifications of the applicant as the Commission may deem appropriate for the license. In connection with applications for licenses to operate production or utilization facilities, the applicant shall state such technical specifications, including information of the amount, kind, and source of special nuclear material required, the place of the use, the specific characteristics of the facility, and such other information as the Commission may, by rule or regulation, deem necessary in order to enable it to find that the utilization or production of special nuclear material will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public. Such technical specifications shall be a part of any license issued. The Commission may at any time after the filing of the original application, and before the expiration of the license, require further written statements in order to enable the Commission to determine whether the application should be granted or denied or whether a license should be modified or revoked. All applications and statements shall be signed by the

applicant or licensee. Applications for, and statements made in connection with, licenses under sections 103 and 104 shall be made under oath or affirmation. The Commission may require any other applications or statements to be made under oath or affirmation.

"b. The Advisory Committee on Reactor Safeguards shall review each application under section 103 or 104 b. for a license for a facility, any application under section 104 c. for a testing facility, and any application under section 104 a. or c. specifically referred to it by the Commission, and shall submit a report thereon, which shall be made part of the record of the application and available to the public, except to the extent that security classification prevents disclosure.

SEC. 185. CONSTRUCTION PERMITS.—All applicants for licenses to construct or modify production or utilization facilities shall, if the application is otherwise acceptable to the Commission, be initially granted a construction permit. The construction permit shall state the earliest and latest dates for the completion of the construction or modification. Unless the construction or modification of the facility is completed by the completion date, the construction permit shall expire, and all rights thereunder be forfeited, unless upon good cause shown, the Commission extends the completion date. Upon the completion of the construction or modification of the facility, upon the filing of any additional information needed to bring the original application up to date, and upon finding that the facility authorized has been constructed and will operate in conformity with the application as amended and in conformity with the provisions of this Act and of the rules and regulations of the Commission, and in the absence of any good cause being shown to the Commission why the granting of a license would not be in accordance with the provisions of this Act, the Commission shall thereupon issue a license to the appli-

cant. For all other purposes of this Act, a construction permit is deemed to be a 'license'.

SEC. 189. HEARINGS AND JUDICIAL REVIEW.—

a. In any proceeding under this Act, for the granting, suspending, revoking, or amending of any license or construction permit, or application to transfer control, and in any proceedings for the issuance or modification of rules and regulations dealing with the activities of licensees, and in any proceeding for the payment of compensation, an award or royalties under sections 153, 157, 186 c., or 188, the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit any such person as a party to such proceeding. The Commission shall hold a hearing after thirty days' notice and publication once in the Federal Register on each application under section 103 or 104 b. for a license for a facility, and on any application under section 104 c. for a license for a testing facility.

SEC. 261. APPROPRIATIONS.—

a. There are hereby authorized to be appropriated such sums as may be necessary and appropriate to carry out the provisions and purposes of this Act, except— . . .

(2) Such as may be necessary to carry out cooperative programs with persons for the development and construction of reactors for the demonstration of their use, in whole or in part, in the production of electric power or process heat, or for propulsion, or solely or principally for the commercial provision of byproduct material, irradiation, or other special services, for civilian use, by arrangements (including contracts, agreements, and loans) or amendments thereto, providing for the payment of funds, the rendering of services, and the undertaking of research and development without full reimbursement, the waiver of charges accompanying such arrangement, or the provision by the Commission of any other financial

assistance pursuant to such arrangement, or which involves the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction or expansion undertaken by the Commission as a part of such arrangements.

2. The regulations of the Atomic Energy Commission, 10 CFR, provide in part:

Sec. 50.34 Contents of applications; technical information hazards summary report. Each application shall state the following technical information:

(a) A description of the chemical, physical, metallurgical, or nuclear process to be performed, and a statement of the kind and quantity of any radioactive effluent expected to result from the process. The description of the process should be sufficiently detailed to permit evaluation of the radioactive hazards involved. The magnitude of the proposed operation should be indicated in terms of the amount and radioactivity of source, special nuclear, or by-product material to be handled per unit of time, and thermal power to be generated if any.

(b) A description of the facility. The description should be based on the design criteria for the facility as a whole and for those major component parts which are essential to the safe operation of the facility, and should be presented in sufficient detail to allow an evaluation of the adequacy of the various means proposed to minimize the probability of danger from radioactivity to persons both on and off-site. The description should also cover any activities, other than those subject to license, proposed to be carried on in the building which will house the facility and on the balance of the site.

(c) A description of the site on which the facility is to be located. This should include a map of the area showing the location of the site and indicating the use to which the surrounding land is put, i. e., industrial; commercial, agricultural, residential; loca-

tion of sources of potable or industrial water supply, watershed areas and public utilities; and a scale plot plan of the site showing the proposed location of the facility.

(d) A description of proposed procedures for: routine and non-routine operations, start-up and shutdown, maintenance, storage, training of employees, minimizing operational mishaps (such as locked controls, check-lists, and close supervision), investigating unusual or unexpected incidents; and a description of such other details as may be useful in evaluating the existence and effectiveness of safeguards against the radioactive hazards in the operation of the facility.

(e) A description of plans or proposals in the event that acts or accidents occur which would create radioactive hazards. The description should relate the various operational procedures, the protective devices, and the pertinent features of the site, to such happenings as operational mistakes, equipment or instrument failure or malfunction, fire, electric power failure, flood, earthquake, storm, strike, and riot.

(f) Meteorological, hydrological, geological, and seismological data necessary for evaluating the measures proposed for protecting the public against possible radioactive hazards.

(g) An evaluation of the proposed measures and devices to prevent acts or accidents which would create radioactive hazards or to protect against the consequences should such acts or accidents occur.

(h) A description of procedures for disposal of radioactive solid waste and the final disposal of liquid waste effluent.

(i) A description of means provided to sample atmosphere discharges through stacks where such stacks may emit by-product material or special nuclear material.

Sec. 50.35 Extended time for providing technical information. Where, because of the nature of a proposed project, an applicant is not in a position to

supply initially all of the technical information otherwise required to complete the application, he shall indicate the reason, the items or kinds of information omitted, and the approximate times when such data will be produced. If the Commission is satisfied that it has information sufficient to provide reasonable assurance that a facility of the general type proposed can be constructed and operated at the proposed location without undue risk to the health and safety of the public and that the omitted information will be supplied, it may process the application and issue a construction permit on a provisional basis without the omitted information subject to its later production and an evaluation by the Commission that the final design provides reasonable assurance that the health and safety of the public will not be endangered.

Sec. 50.40 Common standards. In determining that a license will be issued to an applicant, the Commission will be guided by the following considerations:

(a) The processes to be performed, the operating procedures, the facility and equipment, the use of the facility, and other technical specifications, or the proposals in regard to any of the foregoing collectively provide reasonable assurance that the applicant will comply with the regulations in this chapter, including the regulations in Part 20, and that the health and safety of the public will not be endangered.

(b) The applicant is technically and financially qualified to engage in the proposed activities in accordance with the regulations in this Chapter.

(c) The issuance of a license to the applicant will not, in the opinion of the Commission, be inimical to the common defense and security or to the health and safety of the public.

Sec. 50.56 Conversion of construction permit to license or amendment of license. Upon completion of the construction or alteration of a facility, in compliance with the terms and conditions of the construction

permit and subject to any necessary testing of the facility for health or safety purposes, the Commission will, in the absence of good cause shown to the contrary issue a license of the class for which the construction permit was issued or an appropriate amendment of the license, as the case may be.

APPENDIX B
(10 CFR Part 50)

LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

Notice of Proposed Rule Making

At the present stage of development of nuclear reactors, most new facilities incorporate features having varying degrees of advanced technology. Usually in these cases substantial research and development effort is needed to prove out the feasibility of major features or components of the project. Under the proposed amendments, the Commission may issue construction permits on the basis of site approval for a facility of the size and general design concepts proposed even though there are major features or components with respect to which necessary safety determinations cannot then be made. The Commission will not be required to make a judgment as to the probable results of research and development programs to resolve the undetermined safety questions. The applicant will be on notice as to the features for which safety approval is withheld at the time of issuance of the construction permit. It will be permissible for him to start construction after he has obtained this site approval and he may thereafter obtain approval of design details and specifications by amendment to his provisional construction permit as the work progresses.

Notice is hereby given that adoption of the following amendment is contemplated. All interested persons who desire to submit written comments and suggestions for consideration in connection with the proposed amendments should send them to the United States Atomic Energy Commission, Washington 25, D. C., Attention: Director, Division of Licensing and Regulation, within 60 days after publication of this notice in the FEDERAL REGISTER.

Section 50.35 is amended to read as follows:

*** 50.35 Issuance of construction permits:**

(a) Where, because of the nature of a proposed project, an applicant is not in a position to supply initially all

of the technical information required to support the issuance of a construction permit which approves all proposed design features, the Commission may nevertheless issue a construction permit if it finds that there is reasonable assurance that the proposed location is suitable from a safety standpoint for a facility of the size (power level in the case of reactors) and general design concept proposed, that the applicant has identified any major features or components on which further research and development work is needed to determine their acceptability from a safety standpoint, and that the applicant will conduct a research and development program which will investigate the unresolved safety questions.

(b) A construction permit will constitute an authorization to the applicant to proceed with construction but will not constitute Commission safety approval of any design feature, or specification unless the applicant specifically requests such approval and such approval is incorporated in the permit. The applicant, at his option, may request such approvals in the initial construction permit or, from time to time, by amendment to his construction permit.

(c) Except to the extent that approval of design features or specifications has been incorporated in the permit, any construction permit will be subject to the limitation that a license authorizing operation of the facility will not be issued by the Commission until the applicant has submitted to the Commission (by amendment to the application) the complete final hazards summary report (portions of which may be submitted and evaluated from time to time), and the Commission has found that the final design provides reasonable assurance that the health and safety of the public will not be endangered by operation of the facility in accordance with the procedures, limitations and conditions specified in the final hazards summary report.

Dated at Germantown, Md., this 5th day of February 1960.

For the Atomic Energy Commission

A. R. LUDKE,
General Manager.

APPENDIX C

CONSTRUCTION PERMITS ISSUED BY ATOMIC ENERGY COMMISSION

I. Power Reactors

CPPR-1	Consolidated Edison Co.	21 F.R. 3084	5 9 53
CPPR-2	Commonwealth Edison Co.	21 F.R. 3085	5 9 53
CPPR-3	General Electric Company	21 F.R. 3395	5 22 53
CPPR-4	Power Reactor Development Co.	21 F.R. 5974	8 9 53
CPPR-5	Yankee Atomic Electric Co.	22 F.R. 7188	
		22 F.R. 9237	11 19 53
CPPR-6	Saxton Nuclear Experimental Corp. Associates, Inc.	24 F.R. 9244	
		25 F.R. 1471	2 18 53
CPPR-7	Carolinas Virginia Nuclear Power Associates, Inc.	25 F.R. 522	
		25 F.R. 4206	5 11 53
CPPR-8	Northern States Power Company	25 F.R. 254	
		25 F.R. 4484	5 20 53
CPPR-9	Consumers Power Company	25 F.R. 1699	
		25 F.R. 5002	6 7 53

II. Research and Development Reactors

CPRR-1	University of Michigan ²		2 17 53
CPRR-2	Armour Research Foundation ³		6 12 53
CPRR-3	U.S. Naval Research Lab. ³		4 29 53
CPRR-4	Battelle Memorial Institute ³		5 4 53
CPRR-5	Massachusetts Institute of Technology ³		5 7 53
CPRR-6	Aerojet-General Nucleonics	21 F.R. 6520	8 29 53
CPRR-7	Industrial Reactor Lab. Inc.	22 F.R. 618	1 30 53
CPRR-8	Westinghouse Electric Corp.	22 F.R. 152	
		22 F.R. 4891	7 11 53
CPRR-9	Aerojet-General Nucleonics	22 F.R. 742	
		22 F.R. 1321	3 2 53
CPRR-10	North Carolina State College	22 F.R. 1052	
		22 F.R. 1616	3 13 53
CPRR-11	Curtiss Wright Corp.	22 F.R. 3902	
		22 F.R. 4516	6 27 53
CPRR-12	Aerojet-General Nucleonics	22 F.R. 4327	
		22 F.R. 4919	7 12 53
CPRR-13	Aerojet-General Corp. & Aerojet Gen. Nucl.	22 F.R. 4329	
		22 F.R. 4919	7 12 53
CPRR-14	North American Aviation, Inc.	22 F.R. 5648	
		22 F.R. 6367	8 8 53

¹ List of permits same as that presented to court of appeals.

² Where there are two F.R. citations for an application, the first contains the notice of intention to issue a construction permit, generally including all findings of fact, and the second contains notice of issuance of permit. Dates given are dates of publication of notice of issuance of permit.

³ Not published in Federal Register. Date given is date of issuance of permit.

TPRR-15	University of Virginia	22 F.R. 6978		
		22 F.R. 7494	9 19	57
TPRR-16	Ordnance Materials Research Office	22 F.R. 7410		
		22 F.R. 8020	10 9	57
TPRR-17	Daystrom, Inc.	22 F.R. 7667		
		22 F.R. 8424	10 25	57
TPRR-18	Union Carbide Corp.	22 F.R. 7916		
		22 F.R. 9005	11 9	57
TPRR-19	General Electric Co.	22 F.R. 8019		
		22 F.R. 8855	11 2	57
TPRR-20	American Radiator and Standard Sanitary Corp.	22 F.R. 8189		
		22 F.R. 8964	11 7	57
TPRR-21	University of Florida	22 F.R. 9732		
		22 F.R. 29	1 1	58
TPRR-22	Aerojet-General Nucleonics	23 F.R. 168		
		23 F.R. 690	2 1	58
TPRR-23	Aerojet-General Nucleonics	23 F.R. 689		
		23 F.R. 1279	3 1	58
TPRR-24	Aerojet-General Nucleonics	23 F.R. 725		
		23 F.R. 1279	3 1	58
TPRR-25	General Dynamics Corp.	23 F.R. 2462		
		23 F.R. 3107	5 9	58
TPRR-26	North American Aviation, Inc.	23 F.R. 2991		
		23 F.R. 3581	5 23	58
TPRR-27	Aerojet-General Nucleonics	23 F.R. 5551		
		23 F.R. 6489	8 12	58
TPRR-28	Babcock and Wilcox Co.	23 F.R. 6380		
		23 F.R. 7089	9 12	58
TPRR-29	Nuclear Development Corp. of Amer.	23 F.R. 7332		
		23 F.R. 7934	10 14	58
TPRR-30	University of Arizona	23 F.R. 8681		
		23 F.R. 9270	11 29	58
TPRR-31	Cornell University	23 F.R. 8681		
		23 F.R. 9270	11 29	58
TPRR-32	North Carolina State College	23 F.R. 8769		
		23 F.R. 9355	12 3	58
TPRR-33	University of Wyoming	24 F.R. 951		
		24 F.R. 1764	3 5	59
TPRR-34	North Carolina State College	24 F.R. 1575		
		24 F.R. 2317	3 25	59
TPRR-35	West Virginia University	24 F.R. 4569		
		24 F.R. 5255	6 27	59
TPRR-36	Veterans Administration Hospital	24 F.R. 4671		
		24 F.R. 5347	7 1	59
TPRR-37	State College of Washington	24 F.R. 5121		
		24 F.R. 5696	7 15	59
TPRR-38	Texas Agricultural and Mechanical College Sys.	24 F.R. 5744		
		24 F.R. 6441	8 11	59

CPRR-39	University of Buffalo	24 F.R. 7045	
CPRR-40	University of Washington	24 F.R. 7625	9 22 30
		24 F.R. 7797	
CPRR-41	Iowa State University	24 F.R. 8469	10 20 30
		24 F.R. 7741	
CPRR-42	University of California	24 F.R. 8468	10 20 30
		24 F.R. 8468	
CPRR-43	Virginia Polytechnic Institute	24 F.R. 9409	11 21 30
		24 F.R. 8660	
CPRR-44	Curators of University of Missouri, School of Mines and Metallurgy	24 F.R. 9409	11 21 30
		24 F.R. 9028	
CPRR-45	Worcester Polytechnic Institute	24 F.R. 9556	11 28 30
		24 F.R. 9064	
CPRR-46	Board of Trustees of Leland Stanford Junior University	24 F.R. 9590	12 1 30
		24 F.R. 9027	
CPRR-47	Naval Research Laboratory	24 F.R. 9556	11 28 30
		24 F.R. 9027	
CPRR-48	Walter Reed Army Institute of Research	24 F.R. 9557	11 28 30
		24 F.R. 10322	
CPRR-49	Ohio State University	24 F.R. 255	1 13 60
		25 F.R. 415	
CPRR-50	American Radiator and Standard Sanitary Corp.	25 F.R. 1140	2 9 60
		25 F.R. 1968	3 5 60
CPRR-51	University of Illinois	25 F.R. 2369	
		25 F.R. 3178	4 12 30
CPRR-52	University of Kansas	25 F.R. 2465	
		25 F.R. 3200	4 13 60
CPRR-53	University of Maryland	25 F.R. 5253	
		25 F.R. 6374	7 7 60
CPRR-54	Atomic International, Division of North American Aviation, Inc.	25 F.R. 5192	
		25 F.R. 6373	7 7 60
CPRR-55	University of Wisconsin	25 F.R. 4206	
		25 F.R. 5253	8 11 60
CPRR-56	Lockheed Aircraft Corp.	25 F.R. 4701	
		25 F.R. 5549	6 18 60
CPRR-57	Georgia Institute of Technology	25 F.R. 1700	
		25 F.R. 5549	6 18 60
CPRR-58	Cornell University	25 F.R. 5191	
		25 F.R. 6372	7 7 60

APPENDIX D

LIST OF REPORTED ATOMIC REACTOR ACCIDENTS

Reactors in United States

Date	Reactor and Location	Type of Accident	Reference
1961			
Jan 3	SL-1 Arco, Idaho	Explosion	Report on SL-1 AEC General Manager Board of Investigation
1960			
Nov 15	Dresden, Ill.	Control rod failure	AEC Docket No. 50-10
Apr 3	WTR Waltz Mill, Pa.	Fuel element failure	<i>Nucleonics Week</i> 4/14/60:3
March 10	GETR Pleasanton, Cal.	Fuel element release	<i>Annual Report</i> AEC, 1960 p. 279
Feb.	HRE-2 Oak Ridge, Tenn.	Corrosion hole in core tank	<i>Nucleonics Week</i> , 2/18/60:3
1959			
July 24	SRE Santa Susana, Cal.	Fuel element failure	<i>Nuclear Safety</i> , AEC. 3/60:73
1958			
Nov. 18	ANP Idaho Falls, Id.	Release	<i>Oak Ridger</i> , Oak Ridge, Tenn. 12/1/58
Apr 4	HRE-2 Oak Ridge, Tenn.	Leak in core tank	<i>Semi-Annual Report</i> , AEC, July-Dec. 1958, p. 32
1957			
Feb. 12	Godiva Los Alamos, N.M.	Godiva explosion	22nd Semi-Annual Report AEC, July 1957, p. 66.
Jan 4	KEWB Santa Susana, Cal.	Pump failure	<i>Radiation Hazards, etc.</i> Joint Committee on Atomic Energy, 86th Cong. 1st Session, Feb. 1959, p. 314.
1956			
Nov.	HRE-2 Oak Ridge, Tenn.	Corrosion	<i>Oak Ridger</i> , Oak Ridge, Tenn. 12/21/56.
Sept 6	Seawolf Groton, Conn.	Sodium corrosion	21st Semi-Annual Report AEC, Jan. 1957, p. 50.

Date	Reactor and Location	Type of Accident	Reference
1956 July 23	MTR Idaho Falls, Id.	Refueling exposures	<i>Radiation Hazards</i> , etc. Joint Committee on Atomic Energy, 86th Cong. 1st Session, Feb. 1959, p. 96.
1955 Nov. 29	EBR-1 Arco, Id.	Meltdown	Argonne National Laboratory, Report 571 AEC, November 1957.
Nov. 1	PR Hanford, Wash.	Fire in reactor slug	TID-5360, AEC August 1956, p. 47.
May 1954	RRR Raleigh, N.C.		TID-5360, AEC August 1956, p. 28.
June	MTR Arco, Idaho	Fuel plate melting	Proceedings of 1st United Nations Conference on Peaceful Uses of Atomic Energy, Vol. 11, p. 276.
Feb. 3 1952	Godiva Los Alamos, N.M.	Burst causes disassembly	TID 5360, AEC August 1956, p. 9.
June 2	CP Lemont, Ill.	Loss of moderator	Ibid. p. 23
June 2 1949	Clementine Los Alamos, N.M.	Ruptured fuel element	PRDC Tr. 4078 Testi- mony of W. K. Davis
Dec:	Los Alamos, N.M.	Super-criticality	<i>Radiation Hazards</i> , etc. Joint Committee on Atomic Energy, 86th Cong. 1st Session, Feb. 1959, p. 96.
1947- 1948	GR Oak Ridge National Laboratory, Oak Ridge, Tenn.	Fuel element failure	Proceedings of 1st United Nations Conference, etc. Vol. 11, p. 286.

11 Reactors in Foreign Countries.

Date	Reactor and Location	Type of Accident	Reference
1960			
July 6	G-2 Marcoule, France	Fuel canal rupture	<i>Nucleonics Week</i> 7/14/60:5
March	Teakettle W. Berlin, Germany	Research reactor breakdown	<i>Nucleonics Week</i> 4.14/60:5
1959			
Dec. 19	JRR-I Tokai, Mura, Japan	Release	<i>Nucleonics Magazine</i> 2/60:26
Nov. 10	AGN-211 Basle, Switzerland	Scream malfunction	AEC Docket No. 50-88; 50-103 ltrs. dated 5/6/60, 8/18/60, 8/25/60.
Feb. 16	EL-2 Saclay, France	Fuel element rupture	<i>Nucleonics Magazine</i> 3/60:85
1958			
Dec. 27	EL-2 Saclay, France	Fuel element failure	<i>Nucleonics Magazine</i> 3/60:85
Oct. 15	ZER Vinci, Yugoslavia	Power surge	<i>Nuclear Safety</i> AEC, Sept. 1959, p. 38.
June 28	Calder Hall, Calder Hall, England	Turbine failure	ATOM 8/58:8 Bulletin of United Kingdom Atomic Energy Authority.
May 23	NRU Chalk River, Canada	Power burst	<i>Nuclear Safety</i> , AEC 3/60:82ff
April 13	EL-3 Saclay, France	Fuel element failure	<i>Nucleonics Magazine</i> 3/60:82ff
1957			
Dec.	Saphir Wurenlingen, Switzerland	Air pollution	Proceedings of 2nd United Nations Conference, etc. Vol. 10, p. 192.
Nov. 26	EL-2 Saclay, France	Converter meltdown	<i>Nucleonics Magazine</i> 3/60:82ff
Oct. 10	Windscale #1 Windscale, England	Burning fuel elements	<i>Nuclear Safety</i> , AEC 12/59:55
1956			
Oct. 26	G-1 Marcoule, France	Fuel Ele. partial burn.	Proceedings of 2nd United Nations Conference, etc. Vol. 9, p. 490.

Date	Reactor and Location	Type of Accident	Reference
1955 Feb.	JEEP Kjeller, Norway	Uranium Oxidized	Proceedings of 1st United Nations Conference, etc. Vol. 11, p. 262.
1954 July	Windscale #1 Windscale, England	Spontaneous energy release	Proceeding of 2nd United Nations Conference, etc., Vol. 10, p. 500.
1953	HWRR Soviet Union	Uranium rod covering failure	Proceedings of 1st United Nations Conference, etc. Vol. 11, p. 428.
1952 Dec. 12	NRX Chalk River, Canada	Power surge	<i>Engineering Journal</i> Engineering Institute of Canada, 10/53
September	Windscale #1 Windscale, England	Accidental release	CMND. 471, 7/58 Atomic Energy Office Report, July 1958

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